

GYNECOLOGY

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Prolapse of the Uterus

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It should be remembered that in cases of "prolapse" the descent of the uterus is not primarily due to a pathological condition of that organ; that is to say, the uterus plays a passive part in the development of the condition. The essential lesion leading to prolapse of the uterus is a loss of integrity of the normal uterine supports, and it is obvious that before we can undertake to cure or prevent the condition it is necessary to have a clear conception of the normal supports of the uterus and the vaginal walls.

Uterine Supports

The **Pelvic Floor** is an indirect support as will be shown, but its integrity is most important nevertheless.

The **Levator Ani Muscles** together with their fascial sheaths constitute the principle pelvic diaphragm. Each muscle is made up of three parts:

Pubo-coccygeus, extending from the pubic ramus to the anal raphe and the tip of the coccyx.

Ilio-coccygeus, extending from the "white line" to the anal raphe and tip of the coccyx.

Ischio-coccygeus (or **Coccygeus** of anatomists), extending from the spine of the ischium and fanning backwards to be inserted along the length of the coccyx.

Of these three components the **Pubo-coccygeus** is the most important gynaecologically. Some of its inner fibres decussate behind the rectum before insertion into the anal raphe and thus form what might be called a third anal sphincter, for not only does contraction of these fibres angulate the rectum forward but the decussating fibres partially occlude the anal canal from side to side. The innermost fibres are the most important of all since some of them fuse with the smooth muscle and fascia of the lower 1/3 of the vagina and decussate between the vagina and rectum, thus forming a direct support for the lower posterior aspect of the vagina and also assist in closing the vaginal orifice from side to side. These decussating fibres are also important in that they divide the pelvic floor into two parts: anteriorly, the hiatus urogenitalis, containing the vagina and urethra; posteriorly, the hiatus rectalis. So long as the decussating fibres between the vagina and rectum

are intact the urogenital hiatus is small; if they are torn the introitus becomes patulous with an increasing tendency to prolapse of the vaginal walls and subsequently the uterus. It is the repair of these fibres that forms the basis of plastic repair operations.

The three components of the **Levator Ani** are supplied by the 4th sacral nerve.

The **Perineal Muscles** assist in maintaining the integrity of the pelvic floor. They are: the **Superficial Transverse Perinei**, the **Ischio-cavernosus** and the **Bulbo-cavernosus**—comprising the superficial group; and the **Deep Transverse Perinei** and **Sphincter Urethrae**—within the urogenital diaphragm.

These muscles are all supplied by the pudendal nerve, which arises from the 2nd, 3rd and 4th sacral nerves.

The **Perineal Body** is coneshaped and placed between the lower ends of the vagina rectum with the apex directed cranially. It is the central point of the perineum and forms a point of insertion for the following muscles: **Superficial Transverse Perinei**, **Bulbo-cavernosus**, **Deep Transverse Perinei**, **Pubo-coccygeus** fibres which decussate between the vagina and rectum and the **External Sphincter Ani**; as well as both layers of the urogenital diaphragm.

It is to be noted again that the pelvic floor as described offers no direct support to the uterus (vide Figures I and II). There is, however, a direct support to the lower third of the posterior and lateral walls of the vagina.

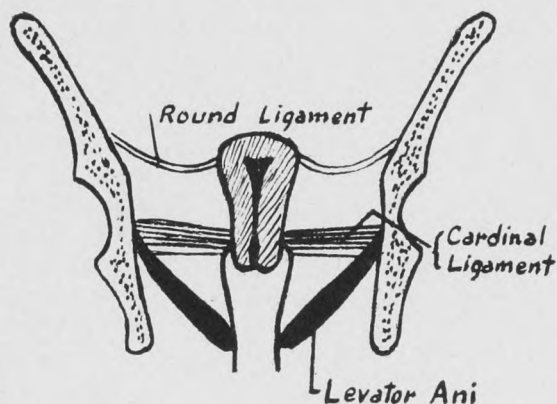
Ligamentary Supports of the Cervix and Uterus:

Although they are called "ligaments" and are attached to the uterus the **Round and Broad Ligaments** do not afford any significant support.

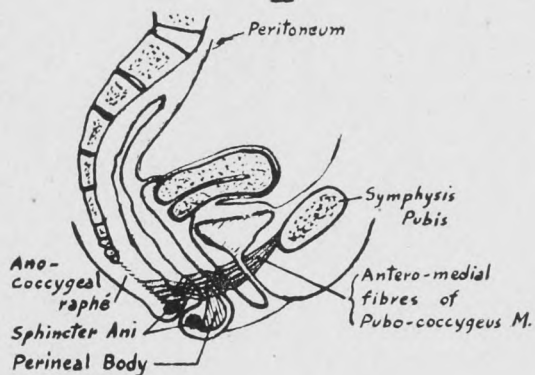
The **round ligament** is the female equivalent of the gubernaculum testis of the male; it arises from the uterine cornu anterior to and below the interstitial portion of the Fallopian tube and passes laterally to the internal abdominal ring, thence through the canal of Nuck to terminate in the labium majus. When the normal uterus is inspected at laparotomy the round ligaments are never taut—but they can be shortened at operation to form a true ligamentary support. During pregnancy it is thought that the round ligaments do perform a definite function, particularly during labour (by which time they have become very hypertrophied

and strong) when their muscular elements contract in unison with uterine contractions. By so doing they probably have the two-fold function of maintaining the uterus in the midline and also pulling the fundus forward, bringing the axis of the uterus into line with that of the brim.

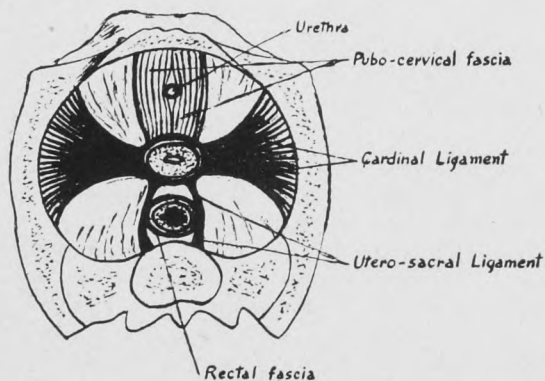
I



II



III



The broad ligaments give little or no support, consisting as they do of two layers of peritoneum enclosing the Fallopian tubes in their free margins, blood vessels, nerves, lymphatics and a small

amount of areolar tissue. Since the infundibular pelvic and ovarian ligaments reach the ovary, the broad ligament it is possible that indirectly they might assist in maintaining the uterus in midline.

The Retinaculum Uteri (Shaw) is a term not in common use but one that would seem to be appropriate. At the level of the cervix and upper vagina the pelvic cellular tissue is condensed to form the endopelvic fascial sheet which fans out in all directions from the cervix in a roughly horizontal plane. This condensed cellular tissue contains some smooth muscle fibres, lymphatics, sympathetic nerves and small veins. Further down the sheet of endopelvic fascia is continuous with the fascial sheaths of the vagina, cervix and bladder (vide Figure III).

Laterally the strongest condensation fans out from the cervix to the side walls of the pelvis. This portion is known variously as the Carver's Transverse Cervical or Mackinrod's Ligament. It lies below the level of the uterine vessels and is tunnelled by the ureter. It may be likened to a transverse axis of support for the uterus, the point of attachment at about the level of the internal os so that as the fundus moves backward the cervix is swung forward.

Posteriorly, and continuous with the posterior margin of the Cardinal ligament is the condensation known as the Utero-sacral ligament. It extends back and up to the sacrum, passing around the side of the rectum. It tends to pull the uterus backward and, therefore, to swing the fundus forward. It also prevents descent of the uterus. It is overlain by but is not intimately connected to the utero-sacral folds of peritoneum seen at laparotomy.

Anteriorly a less well defined sheet of pelvic fascia passes forward from the uterus between the vagina and bladder, splitting to allow passage of the urethra. This is commonly described as the Pubo-cervical fascia, but it is not the simple entity described here or shown in Figure III for in reality there is a very complex series of fascial planes, about which there is no universal agreement, as will soon be evident to anyone who tries to understand the various opinions on the subject. (See below and figure IV).

Although not agreed upon by all authorities, the Retinaculum Uteri probably affords the main support of the uterus (and upper vagina), these condensations not only fix the uterus to the side walls of the pelvis, but to the sacrum behind the bladder and pubis in front and to the cranium of the levator ani. None of these supports is purely tonal.

Supports of the Anterior Vagina Wall

The vagina and bladder are each supported

by a fascial layer—condensations of the pelvic cellular tissue. The vaginal fascia is normally well developed and contains smooth muscle fibres. The vesical fascia is thin, elastic and not so well defined.

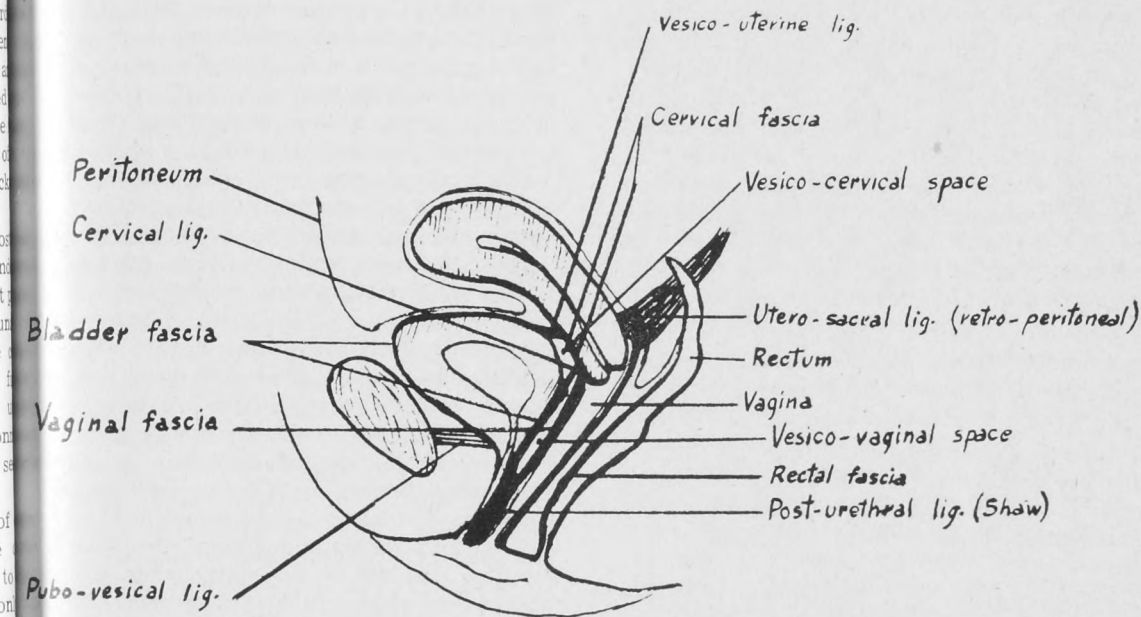
The vesico-vaginal space (potential only) is the plane of cleavage between these two layers of fascia in the region of the upper 1/3 of the anterior vaginal wall. Caudally these two layers fuse at the level of the internal urinary meatus to form the post-urethral ligament (Shaw) which is attached to the pubic ramus on each side as far as the junction of the rami of the pubis and ischium, and medially is attached in the midline to the bladder. It forms a strong support for the urethra.

the operation of total abdominal hysterectomy.

The vesico-cervical space is bounded below by the vesico-cervical ligament and above by the vesico-uterine ligament.

Note: The fascial ligaments mentioned above, with the exception of the vesico-uterine ligament, are all parts of the so-called pubo-cervical fascia. It is also to be noted that the anterior vaginal wall is supported from above by its adherence to the bladder and post-urethral ligament, and **Not** by any support from below. This can readily be demonstrated by inserting a weighted vaginal speculum, when it will be seen that the normal anterior vaginal wall is held in place when all posterior support is removed.

IV



The vesico-cervical ligament is a continuation of the inferior vesical fascia to the anterior surface of the supravaginal cervix just above the point where the vagina joins the cervix. It is thin, contains smooth muscle fibres and has a linear attachment to the cervix.

The bladder septa—one on either side of the vesico-cervical ligament (and part of the same fascial sheet); much thicker and more vascular than the latter. These have to be cut when doing a Manchester repair before the bladder can be pushed up.

The vesico-uterine ligament is a continuation of the vesical fascia from the upper surface of the bladder to the uterus at about the level of the internal os. It is most readily identified during

Supports of the Posterior Vaginal Wall

Prolapse of the posterior vaginal wall is rarely so marked as of the anterior vaginal wall because: intra-abdominal pressure is directed more anteriorly; the utero-sacral ligaments are attached to the upper lateral vaginal walls and tend to maintain its position; and, the most medial fibres of the Pubo-coccygeal portion of the Levator Ani decussate behind the lower vagina and fuse with its fibres in the lower third.

Aetiology of Prolapse of the Uterus

Although certain factors to be mentioned below have been long considered to be of prime aetiological importance there is an increasing body of opinion that asthenia is probably the most im-

portant single factor, giving rise to laxness of the muscles and fascia and frequently associated with visceroptosis of varying degrees of severity.

Childbirth is the most common predisposing cause but this statement must be modified by adding that almost invariably abnormal factors are present during the pregnancy, delivery or puerperium. These abnormal factors may best be itemized:

(a) Bearing children in rapid succession prevents proper recovery of the pelvic organs and supports. In such cases, too, the woman may be run down physically from having to care for several small children; i.e. she becomes asthenic.

(b) Prolongation of the second stage of labour in cases where bony foeto-pelvic disproportion does not obtain. In such cases the presenting part is allowed to "pound" on the perineum, apparently with the object of eventually delivering the infant with "an intact perineum"—a much striven for goal of an earlier generation of obstetric teachers. It is now generally agreed, however, that an intact fourchette and vaginal wall does **Not** necessarily prove the preservation of an intact perineum. To the contrary, such an intact "appearance" may well hide serious damage done to the underlying muscles and perineal body. For this reason it is now accepted that it is good obstetrics to do an episiotomy to prevent such hidden damage.

(c) Precipitate delivery, including the injudicious administration of posterior pituitary extract will violently tear pelvic structures that would gradually stretch to allow passage of the foetus.

(d) Forceps extraction carried out too rapidly, or still more damaging, forceps extraction before the cervix is fully dilated, in which case the whole uterus is pulled down causing disruption of the retinaculum uteri.

(e) Subinvolution. It is sometimes forgotten that the uterus is only one of several organs and structures subject to the process of involution following childbirth; the vagina, retinaculum uteri, ureters, pelvic diaphragm, perineal muscles and components of the external genitalia equally share the process. Subinvolution in effect gives rise to a state of "local asthenia" and is a very important predisposing factor to prolapse. It may be due to general debility caused by disease, severe anaemia, malnutrition or the exhaustion of the overworked. Puerperal sepsis invariably delays involution. Failure of the mother to nurse her child definitely delays involution; suckling reflexly stimulates an outpouring of the oxytocic hormone from the posterior pituitary gland as is readily demonstrated by the assertion of most multiparae that they have a definite onset of "after pains" as soon as they start to nurse.

(f) Insufficient post-partum rest in bed. This has become a controversial point now that early ambulation after surgical operation has proven to be so beneficial. Some obstetricians apply the same principles to obstetrical cases, but I do not feel that the analogy between a surgical case and a parturient woman is justified. In the former case the post-operative patient is left with muscles and fasciae of normal tone even though some may have been incised and sutured, but in the case of the parturient woman she is left, after delivery, with a uterus that weighs a couple of pounds instead of ounces and all the supports of the uterus (both direct and indirect) lax and incapable of offering adequate support to a normal non-pregnant uterus let alone the puerperal organ. It is true that the immediate results of allowing a woman up on the first, second or third day after delivery are apparently good; certainly the patient herself feels better since she does not become weak in the limbs or giddy when erect. Nevertheless I consider it to be a short-sighted policy to prevent a brief period of limb weakness by early ambulation which throws a definite strain on the lax uterine supports, jeopardizing complete involution of the retinaculum uteri and inviting the development of uterine prolapse at a future date. (Space does not permit the pursuit of this subject further; if I have stimulated some serious thought on the subject I shall be satisfied).

Retroversion of the uterus is **Not** a cause of prolapse in itself since some 20-25% of all young women have the condition, but when some of the above factors co-exist prolapse will develop sooner and more rapidly in the presence of retroversion because: intra-abdominal pressure is allowed to work more directly upon the anterior vaginal wall (through the bladder); before descent of the uterus can progress far some degree of retroversion must occur so that the uterine axis comes in line with that of the vagina. In most cases when the normal position (in the particular individual) of the uterus is that of anteversion, the retroversion that develops with prolapse is a secondary phenomenon due to the cervix being dragged down the vagina by shortening of the anterior and/or posterior vaginal wall due to the preceding formation of cystocele and/or rectocele.

Age. Most cases occur after the menopause at which time there is a further loss of pelvic support with loss of support for the uterus. This additional loss of tone is apparently sufficient to give rise to prolapse when some of the above mentioned factors are in operation, even though such earlier damage may have taken place years before—including, of course, the unnecessary trauma caused by injudicious early ambulation after childbirth.

Occasionally a severe degree of prolapse of the uterus may develop in a young virgin or nullipara.

such cases are nearly always associated with spina bifida or split pelvis. Equally rarely the condition is found in a virgin or nullipara at or soon after the menopause, almost invariably associated with a severe degree of asthenia and visceroptosis.

Any of the above predisposing causes are aggravated by the presence of chronic bronchitis, large abdominal tumors or constipation.

The Anatomy of Prolapse

Cystocoele is always present, but may be present without prolapse of the uterus. It results when the fascial layers between the vagina and bladder (loosely called the pubo-cervical fascial) fails to support the bladder. This is usually the result of damage during childbirth plus asthenia, local or general. Urethrocoele may or may not be present along with the cystocoele.

Rectocoele, a term that is inaccurately applied to any prolapse of the posterior vaginal wall; strictly speaking it should only be applied when there is an actual prolapse of the rectum into the vaginal "sac." Usually a well marked injury to the perineal body precedes the formation of a rectocoele, but in some cases the perineal body is intact—either naturally or repaired after childbirth—and prolapse of the posterior vaginal wall at a higher level occurs as the result of damage to the medial fibres of the Levator Ani (Pubo-occygeus) which was overlooked at the time of delivery. Prolapse of the pouch of Douglas is the worst form, and in this connection it is of note that most of such cases in the past have followed upon the operation of ventrofixation done to cure a prolapse of the uterus. It is now being found more often as a sequel to vaginal hysterectomy.

The Uterus. Three degrees of prolapse are described, and it is to be noted that the definition of these degrees differs in the United Kingdom and the United States.

U.K.	U.S.A.
1st—Cervix descends in the vagina.	Cervix near or at the introitus.
2nd—Cervix descends to the introitus.	Cervix protrudes through the introitus.
3rd—Cervix protrudes through the introitus.	The entire uterus outside the introitus.

The American 3rd degree prolapse is called complete procidentia by the English.

Hypertrophy of the Cervix

If the vaginal portion of the cervix is hypertrophied it is nearly always a congenital anomaly; the vaginal fornices are found to be very deep, and in the absence of vaginal wall prolapse the uterus remains at its normal station in the pelvis, although some degree of retroversion will be present. The supra-vaginal portion of the cervix is commonly elongated in cases of prolapse of the uterus; the exact cause is not known but it has

been suggested that: venous stasis resulting from the descent and retroversion of the uterus somehow stimulates growth of that portion of the cervix; that the cranial portion of the cardinal ligaments remain intact while the caudal portion becomes slack. Obviously such explanations are not very convincing.

Symptoms

"Something coming down the front passage" is perhaps the most common complaint made by the patient. On the other hand there may be no pelvic complaints even in cases advanced to the extent that the cervix has fallen to the level of the introitus. In cases of procidentia the presence of a mass between the thighs may be the only complaint.

Usually, however, the patient complains of backache, felt over the sacrum; a dragging discomfort in the pelvis and/or a bearing down feeling. Vaginal discharge is usually present in advanced cases, which may arise from a chronic cervicitis or a mild vaginitis—the latter is especially likely to occur in post-menopausal cases when the vagina is no longer resistant to infection.

Stress incontinence is perhaps the most troublesome complaint and often it is only with the onset of this complaint that the woman seeks medical attention. (It is amazing how much discomfort some women will stand for years without seeking advice—they seem to consider it all just a part of the process of bearing a family).

Cystitis is common in cases with advanced cystocoele, due to the inevitable infection of residual urine.

Inability to empty the bladder is also a complaint associated with a large cystocoele. The more the patient strains to empty the bladder the less the urine that comes away because the increased intra-abdominal pressure drives the bladder further into the cystocoele and further kinks the neck of the bladder. Such patients often volunteer that they have to push the cystocoele up with their fingers before it is possible to empty the bladder.

Constipation, haemorrhoids and rectal discomfort are common in the presence of a large rectocoele.

Spotting or bleeding (especially after the menopause) may send the patient to the doctor. On examination it may be found that the bleeding comes from trophic ulcers on a protruding cervix or the everted vaginal walls of extreme cases.

Secondary infection of excoriated or ulcerated areas on tissues protruding from the introitus is common.

Note: If a woman with prolapse is pre-menopausal menstrual disorders are rare.

Diagnosis

Usually simple; often an accurate diagnosis may be made merely from the patient's history, but do not jump to conclusions just because the patient states that "something protrudes from the vagina." It is necessary to carry out a careful pelvic examination in **All** cases to determine exactly what, if anything, is protruding and also ascertain the extent of disruption of the normal pelvic relationships. Unless this is done it is impossible to decide upon the correct treatment for the individual case. Examination should be carried out in the lithotomy position.

The extent of the perineal damage must be determined, and in this connection remember that an apparently intact perineum may prove on digital examination (thumb on the perineum and posterior portion of the labium majus and index finger within the vagina) that there has been a serious disruption of levator ani.

If there have been any bladder symptoms the patient should be catheterized and a sample of urine cultured. If culture is impossible at least a careful microscopic examination of the urine should be carried out.

The patient should be asked to bear down and to cough to determine the severity of the prolapse, and more important, to determine exactly what is prolapsing in those cases where there is any protrusion through the introitus. This also affords an opportunity to observe stress incontinence, if any. If the cervix protrudes before either of the vaginal walls suspect a congenital hypertrophy of the cervix, or if a mass protrudes which is not recognized as the cervix suspect a cervical or submucous fibroid. Coughing or bearing down may not produce the mass that the patient claimed to appear; in such cases either grasp the cervix with a tenaculum and apply traction or have the patient stand. If tenaculum traction is employed it must be remembered that by this procedure the cervix of a perfectly normal parous woman may be brought down almost to the introitus.

Rectocele and cystocele can readily be pushed up and "emptied" by digital pressure.

Bimanual examination is carried out to determine the exact position of the uterus; it is invariably retroverted in prolapse of any significance; supravaginal elongation of the cervix can be determined; the size of the uterus is determined and the existence of fibroids discovered if present; abnormal mobility of the uterus can be determined, i.e. laxness of the retinaculum uteri.

Visual examination of the cervix should always be carried out before deciding upon the course of treatment, for there may be a lesion that requires prior treatment, or even biopsy assurance that

it is not malignant. (Most of these patients are in the cancer age).

Differential

If the body of the uterus is found to be in normal position, or retroverted but suspended at its proper level, any bulging of the vaginal wall that may be present is **Not** due to prolapse of the uterus. Such bulging may be due to: a simple cystocele or rectocele, either of which is readily "emptied" digitally; a vaginal inclusion cyst, which cannot be emptied by pressure (remember that 11% of vaginae have scattered glandular elements in the epithelium, especially in the upper third); contrary to the usual anatomical teaching Gaertner cyst, careful examination of which will show that it is not strictly in the midline even though it appears so as it presents at the introitus; for it arises from the antero-lateral aspect of the vagina—such a cyst may or may not be emptied by pressure, depending upon whether it is continuous with patent Mullerian remnants above the vaginal vault; prolapse of the pouch of Douglas can be readily emptied and found to protrude through the upper posterior vaginal wall—coil of intestine may possibly be distinguished; tumor in the pouch of Douglas may cause herniation in the upper posterior vagina, readily distinguished from simple prolapse of the pouch of Douglas by palpation.

Chronic inversion of the uterus is rarely encountered but may lead to an erroneous diagnosis unless its possibility is remembered. A firm mass is felt to occupy the vagina; visual examination may add difficulty as the cervix is not readily identified; on bimanual examination the true nature of the condition can be determined if the patient is not too obese by feeling the inverted fundus.

Vaginal hypertrophy of the cervix, cervical polyp or fibroid and pedunculated submucous fibroid which has come through the cervix can be identified by careful visual and bimanual examination.

Treatment

The line of treatment to be undertaken depends upon the patient's age, marital state, general health and her own wishes when the alternatives are explained to her. Also, each case has to be considered on its own merits. It will be impossible here to give more than a brief outline of the alternatives.

During Childbearing Age:

Nulliparae. Treatment in such cases presents a very difficult problem. It is most unlikely that a young woman would consent to wear a pessary for the rest of her life, but she might agree if she thought that she might have a child reasonably soon, deferring a radical cure until later. Sp

will not permit a description of all the various types of pessary that have been invented for uterine prolapse but most authorities agree that the watch-spring rubber ring type is the most suitable. It may not be possible to insert such a ring of adequate size in a nullipara, in which case the best alternatives are the Napier cup-and-stem pessary supported by tapes attached to a belt, or the air-ball pessary which is inserted in the deflated condition and then blown up. Plastic operations such as those mentioned below can only be done after doing a preliminary perineotomy, which is repaired at the end of the operation. Ventro-suspension or -fixation have been employed. However, it has been almost universally agreed that none of these operations give more than temporary relief, and it is the reluctant conclusion of most experienced gynaecologists that hysterectomy offers the only permanent cure.

Puerous Women. It is not uncommon to find laxity of the perineum, vaginal walls and uterine supports, together with a retroverted uterus soon after childbirth. Such patients are often fatigued, especially if they have several other young children, and suffer from backache due to muscle strain and lax sacro-iliac joints. It is usually an error of judgement to recommend an operation less than six months after delivery for most such cases will respond well to conservative measures, such as: ensuring sufficient sleep; abdominal and perineal exercises such as those devised for the Cyriax method which aims specifically at strengthening the levator ani, gluteal and anal muscles, rectus abdominis and oblique muscles of the abdomen, as well as raising the viscera—especially the colon. (Details of these exercises may be found in F. J. Browne's "Antenatal and Postnatal Care," sixth edition); adequate diet; correction of any anemic state; avoidance of heavy work; pessary to correct the retroverted uterus (but **Not** before the seventh week post-partum), alkaline douches to care for leukorrhoea which is usually present, glycerine suppons and ergot by mouth when there is subinvolution of the uterus and adequate treatment of any puerperal infection.

On the other hand, there are cases who either do not respond to conservative measures or are seen when it is too late for them to be effective. The choice lies between a "pessary life" and operation, with the danger that a subsequent pregnancy will cause a return of the condition. Each such case has to be considered on its own merits; generally speaking, if the woman is not seriously incapacitated and intends to have further pregnancies a pessary will suffice, leaving a major repair until later. A marked cystocoele and/or laceration of the perineum with or without rectocoele should be repaired; however, in such cases the complete

Manchester operation (which is the only one that can be counted upon to give a permanent cure) should not be done unless one is prepared to deal with a subsequent delivery by Caesarean section.

At or After the Menopause:

Operative cure should always be urged unless there is a serious general contra-indication to operation. Occasionally the patient will refuse operation.

Operation Contra-Indicated or Refused

Some form of pessary has to be used, preferably the ring pessary, but where the perineum is very deficient this pessary will not stay in place. In such cases the Napier cup-and-stem or air-ball pessary are the next best choices.

All forms of pessary should be removed by a doctor and cleaned every 2 to 3 months, at which time careful visual examination of the vaginal vault should be carried out to be sure that ulceration is not taking place. The patient should be instructed to douche at least twice a week to prevent collection and infection of vaginal secretions. Pessaries must be carefully fitted so as to cause no discomfort and yet provide the required support.

Operative Procedures

The extent of the operation depends upon the degree of prolapse, not only of the uterus but also of the anterior and posterior vaginal walls.

Simple perineorrhaphy to restore the perineal body is never sufficient—although it makes the wearing of a ring pessary possible.

More and more experienced gynaecologists are coming to agree that the best results are obtained by the vaginal approach, and further, that a well performed Manchester repair is the operation of choice since its aim is to restore the uterine supports, both direct and indirect. Some surgeons carry out a modified version of the true Manchester repair (often stating that they are doing that operation when in fact they do not do so) and then proceed to perform a ventrofixation at the same sitting. Experience has shown that unless the vaginal part of the operation is properly done there will be a recurrence of the prolapse whether there has been a ventrofixation or not; in the latter case the return of the condition will be delayed somewhat.

An exception is made by some authorities in cases of complete procidentia, in which case vaginal hysterectomy is recommended, combined with an anterior colporrhaphy and a posterior colpoperineorrhaphy.

In very old women Le Fort's operation is satisfactory and simple to perform. Recurrence may occur, however, through one of the side channels of the vagina.

Ventrofixation alone gives only temporary relief, and may well initiate a prolapse of the pouch of Douglas. Ventro-suspension is even less effective.

Case Report—Ruptured Uterus

Dr. Ruvin Lyons

Mrs. D. G., age 30 years, French Canadian. Gravid: VI, Para: IV. Miscarriage in 1944 at 2 months.

Past Illnesses

Appendectomy, 1937.

Caesarean Section was done on August 11, 1945, at the St. Boniface Hospital. A normal female child weighing 6 pounds 7 ounces being delivered.

The pre-operative diagnosis is not recorded. Blood Pressure was 150/90 on admission. There was some swelling of the face and ankles. Urinalysis was done, and it is not recorded whether this was catheterized or void. (This was a post-operative specimen). There was gross blood and 1 plus albumin in it.

The type of Caesarean performed is not recorded. The patient was put on 20,000 units of Penicillin intramuscularly O.H.3 immediately post-operative. This was continued until 300,000 units were given. Temperature reached 100.2 on 2nd and 3rd post-operative days, then ran at 99.2 until patients discharge on August 21, 1945, on the tenth day.

Present Illness

May 28, 1948. First visit to prenatal clinic at the Winnipeg General Hospital. L.M.P. Sept. 15, 1947. Exp. Date June 22, 1948.

Physical examination: Pale, otherwise negative. I.S. 25 cms., I.C. 28 cms., E.C. 20 cms., R.O. 23 cms., L.O. 23cms., Inter Tr. 31, Subpubic Angle 100. Fundus 22 cms. above symphysis. Vertex present R.O.T. Blood Pressure was 122/80, Weight 129 lbs., Urine negative for albumin, Hgb. 45%. Patient was put on Ferrous Sulph. grs. V, t.i.d.

June 4, 1948. Second prenatal visit. Findings essentially as before except for trace of albumin found in non-catheterized urine.

June 11, 1948. Albumin in urine increased to .01%. Blood Pressure still 125/70. Full blood count was reported as follows: Hgb. 55%, R.B.C. 2.75 million per cu. mm. Marked anisocytosis with many macrocytes, anisochromia, poikilocytosis, few cells. Patient was advised on this visit to come into the hospital for more active treatment of her anemia, but she refused as she was unable to leave her household duties (4 children).

June 27, 1948, at 5 p.m. Admitted to West 4 in profound shock, having weak irregular pains in her abdomen. Stated she had been in labour some 36 hours. There was generalized tenderness throughout abdomen. She was grouped and matched for transfusion. Her Hgb. at this time being 35%.

6.00 p.m. Cut downs were done for veins in both arms and blood transfusions started. Diag-

nosis of ruptured uterus was made and patient was taken to the O.R. Her abdomen was opened under local anaesthesia. The uterus was found to be ruptured from top of fundus down into the lower uterine segment. A dead baby was lying free in the abdomen. This was removed and the large masses of blood clot cleared out of the abdomen. The uterus was rapidly closed with one line of interrupted chromic sutures. During the operation she received no general anaesthetic. . . . only oxygen was given by circle filter. She received three bottles of whole blood and 500 ccs of 5% glucose in saline and 500 ccs. of 5% glucose in water, pre-operatively and during the operation.

Patient died at 8.30 p.m. while being moved from the operating theatre to the ward.

Comment

Of all uterine wall damage predisposing to rupture, the most important is the scar of a previous Caesarean section. Rupture of scars supervenes as the result of local muscle loss, and the substitution of the connective tissue which undergoes progressive atrophy. Rupture of a uterus is more likely to occur in the fundus following the classical Caesarean section than after the low segment operation. Holland reports a 25% frequency of rupture after fundal Caesarean section while only a 3% is reported by Winterwald, and 4% by Willie after low cervical section. (C. H. Davis, Vol. 1). Marked differences of opinion exist regarding the probability of rupture after Caesarean Section, and many different sets of statistics have been given. For instance, in more than 1,000 cervical Caesarean Section at Chicago Lying in, there has not been recorded a single evidence of uterine rupture. However, the potential danger of rupture in a patient who has had a previous Caesarean Section is serious enough to demand careful prenatal supervision. This is particularly important in those cases where there is a pelvic anomaly and especially so where there is a history of infection following a classical Caesarean Section.

In the case under discussion, there were several factors which warned of impending danger. First was the previous section with the history of some post partum infection. Secondly, there was the severe degree of chronic secondary anemia. The patient was, unfortunately, not a very co-operative one. She had been advised to come into hospital on several occasions but refused to do so; she was specifically warned to come in at once, at the first sign of onset of labour, and this also was not done. This was a preventable death. Had she come in when her labour pains first started, it is quite likely that the sign of impending rupture would have been recognized and active treatment would have been undertaken.

CANCER

Edited by D. W. Penner, M.D.

Review of the General Hospital
Tumor Clinic Cases for 1947

D. M. Boyd* and D. W. Penner

In 1947 a total of 154 different patients were seen in the Tumor Clinic. Of these 37 were benign tumors or lesions and 117 were malignant tumors. Table No. 1 gives the classification according to Standard Nomenclature.

The ages of the patients seen varied from a 4-month-old infant to 89 years of age. The average age, excluding infants, was 55 years, with the youngest adult having a malignant tumor being 21 years. Thirty-four of the 154 cases were 70 years or older, 90 were males, 64 females. Approximately an equal number of the patients were referred from the Out Patient Department of the Winnipeg General Hospital and from private doctors practicing in Winnipeg. Eighteen cases were referred from the country.

An attempt was made to determine the intervals in the various tumor groups that occurred from when the patient's first symptoms developed until they sought medical advice. The intervals were also determined for the time lag which occurred following the seeking of medical advice until

treatment was instigated. In some groups there are only a few cases, hardly sufficient to be more than a rough indication. These intervals are shown in table No. 2. It is interesting to note that the average longest delay from symptom to doctor was in the basal cell group, in spite of the fact that these are superficial tumors and should be easily recognized.

In the 76 cases which were treated with the hope of establishing a cure, 41 were treated by surgery only, 24 by radiation and 11 by a combination of surgery and radiation. Fifty-four were considered incurable by any means, i.e. almost 50% of the cases. This does not include those who refused surgery and were treated with radiation as a second choice. Of these 54 cases, 4 received palliative surgical procedures, 27 palliative radiation, 2 were treated with nitrogen mustard, 3 received a combination of radiation and surgery and in 18 cases no active treatment was instigated.

Summary:

A brief review of the cases seen at the Winnipeg General Hospital Tumor Service in 1947 is presented.

Almost half of the cases seen were considered incurable by any form of treatment. Further education of both the patient and the doctor should increase the salvage from neoplasms.

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Table No. 1

	BENIGN	MALIGNANT
BODY IN GENERAL	Inguinal hernia 1	
SKIN AND SUBCUTANEOUS TISSUE	No lesion 1	Epidermoid carcinoma 8
	Chronic ulcer 2	Basal cell carcinoma 7
	Naevus 1	Melanoma 3
	Hemangioma 2	Myxoma 1
	Senile keratosis 1	Liposarcoma 1
		Fibrosarcoma 1
		Mycosis Fungoides 1
Breast	No lesions 1	Carcinoma 14
	Duct ectasia 1	
	Cystic and prolif. 1	
	Simple cyst 1	
	Duct papilloma 3	
MUSCULO-SKELETAL		
Bone	Paget's disease 1	Chordoma 1
	Fibrous dysplasia 1	
	Cyst 1	
	Giant cell tumor 2	
Mandible	Osteoma 1	
	Radiculo-dental cyst 1	
	Osteomyelitis 1	
Synovium		Synovioma 1
Muscle	Desmoid 1	Myosarcoma 1
RESPIRATORY		
Nose	Rhinophyma 1	
Larynx		Carcinoma 1
Epiglottis		Carcinoma 1
Bronchus		Carcinoma 1

CARDIO-VASCULAR	Varix	1	
HEMIC AND LYMPHATIC	Acute lymphadenitis	1	Multiple myeloma
			Hodgkin's
			Lymphosarcoma
DIGESTIVE			
Mouth	Hemangioma	1	Carcinoma
Lip	Chronic cheilitis	2	Carcinoma
Tongue	No lesion	1	Carcinoma
	Tuberculosis	1	
Teeth	Apical granuloma	1	
Palate			Carcinoma
Salivary glands	Cystadenoma	1	Carcinoma
			Mixed tumor
Pharynx	Acute pharyngitis	1	Carcinoma
Tonsils			Carcinoma
Esophagus			Carcinoma
Stomach			Carcinoma
			Myosarcoma
Small bowel			Multiple polyposis with carcinoma of duodenum
			Leiomyosarcoma
			Carcinoma of the colon
Rectum			Carcinoma
Ampula of Vater			Carcinoma
Pancreas			Carcinoma
Abdomen and Peritoneum			Retroperitoneal leiomyosarcoma
UROGENITAL			
Kidney			Adinocarcinoma
			Wilm's tumor
			Papillary carcinoma of pelvis
Testis			Teratoma
			Seminoma
Uterus			Carcinoma
Ovary	Brenner tumor	1	
ENDOCRINE			
Thyroid			Carcinoma
Thymus	Thymoma	1	
TOTAL		37	

Table No. 2

Average Delays from First Symptom to M.D. and from M.D. to Treatment

	PATIENT		DOCTOR	
	Symptom to M.D.	Extremes	M.D. to Treatment	Extremes
Basal Cell Carcinoma	7.5 years	3 weeks to 15 years	15 days	3 to 49 days
Carcinoma of Breast	15.2 months	1 week to 12 years*	6.3 days	2 to 18 days
		*Case of lump in breast.		
Carcinoma of Bowel (not stomach)	5 months	1 week to 10 months	6 weeks	1 week to 6 months
Carcinoma of Oral Cavity	4.2 months	1 week to 2 years	19 days	3 days to 4 months
Superficial epidermoid				
Carcinoma of Lip and Skin	20.8 months	6 weeks to 12 years	13.7 days	0 to 66 days
Lymphomas	12.4 months	1 month to 4 years	10.8 days	0 to 4 days
Bronchogenic Carcinoma	8.8 months	1 week to 3 years	3 months	1 week to 1 year
Carcinoma of Stomach	5.3 months	1 month to 1 year	6 days	4 to 7 days
AVERAGE	18.6 months		1.5 months	

MEDICINE

Tetanus—A Review With One Case Report

V. F. Bachynski. M.D.

Tetanus is a specific disease entity caused by *B. tetani* characterized by toxæmia which involves the central nervous system and produces tonic spasms of the muscles. The tetanus bacillus has a wide distribution in nature but infection, though relatively rare, is highly fatal in man who is extremely susceptible. Fatal cases are reported in man who were only scratched by needles which had been used for the injection of toxin into horses.

Descriptions of disease date from times of Hippocrates, but it was not until 1884 that Carlo and Mattone succeeded in producing tetanus in rabbits by inoculation with pus from cutaneous lesions of human case. In 1889 Kitasato obtained pure cultures of bacilli from cases of tetanus and was able to produce the disease in animals, thus satisfying Koch's postulates and establishing the specific etiologic role of the tetanus bacillus.

B. tetani are of drum-stick appearance due to spores at one end. These spores may be found in origin soil but much more often in superficial layers of cultivated and manured fields. They are so present in feces of some domestic animals, and only as temporary inhabitants of the intestine. They pass through the gastro-intestinal tract of animals and man without injury. The primary home of the organisms is the soil, and 50% of those cultivated from the soil are relatively non-virulent. In many war wounds, bacilli are found that resemble *B. tetani* morphologically, but are non-pathogenic. Furthermore, proved *B. tetani* can be cultured from about 20% of all war wounds in the absence of clinical tetanus.

I. C. Hall recovered tetanus bacilli from the debrided tissues of 11 of 2,493 civil contaminated wounds. Five wounds accompanied compound fractures, five were lacerations, and one was caused by a burn. Tetanus developed after a burn in one case in which the bacilli were not recovered from the debrided tissues. Hence culture of wounds for *B. tetani* are of little help in the practical management of a case of tetanus.

Birds and cold blooded animals are markedly resistant to *B. tetani*. Cats and dogs are mildly susceptible. Man, equines, and mice are very susceptible.

Spores on germination give rise to a potent toxin, one of the most powerful poisons, with a special affinity for the central nervous system where it exerts a strychnine-like action. It is a neuro-exotoxin. It has been shown experimentally

that tetanus toxin reaches the ventral horn cells of the spinal cord by way of blood stream and involves the somatic muscular system. Central origin of tetanic contractions has been demonstrated by stopping the spasms in a given region by division of the supplying motor nerves. Introduced as spores, and free from toxin, tetanus bacilli may fail to incite disease because of phagocytosis before the vegetative forms develop and toxin is formed.

Spores may lie dormant for months, but if the infected tissue is subsequently damaged, they may germinate and cause tetanus. This depends on the oxidation-reduction potential of the surrounding tissues. Symptoms may appear long after the original wound healed completely. Reduced oxygen tension is necessary.

Spores resist dry heat at 80°C for one hour, live steam at 80°C for 5 minutes, and phenol 5% from 12 to 15 hours. They can remain viable for many years. Sulfonamides do not inhibit the growth of *B. Tetani*.

Types of Lesions

Compound fractures, gunshot wounds, deep lacerated wounds with considerable tissue damage and in which cultivated and manured soil, and feces are likely to be present are favourable for development of the germs. For the same reason, farmers who present themselves with whitlows or scabbed over abrasions are potential victims of clinical tetanus.

Spores may be transported from site of inoculation to liver, spleen and other organs and lie dormant for days.

Incubation Period

This is determined by the amount of toxin, and the time and rate of its release. It is not influenced by the site of injury. It may be prolonged by prophylactic administration of tetanus antitoxin.

The incubation period is 5 to 22 days in acute cases, 4 to 5 weeks in chronic cases. Most cases develop in 7 to 10 days. In Graham and Scott's recent series "all the deaths occurred with incubation periods of 10 days or less." In chronic forms the onset is less abrupt, symptoms slower in development and the prognosis more favourable.

Premonitory Symptoms—Clinical Picture

Mental exhalation and buoyancy, followed by sleeplessness, distressing dreams, yawning, giddiness, headache, general restlessness and depression are prodromal symptoms. Generalized tonic and clonic contractions then follow affecting the muscles with the shortest motor nerve trunks (mas-

setters, hence the name "lockjaw"). The patient has the difficulty in opening the mouth (trismus); and tenseness of face muscles produces the risus sardonius. There is stiffness of the neck, spasm of trunk and back leading to opisthotonos and continuous rigidity of the abdominal muscles. Board-like abdominal rigidity may resemble perforated peptic ulcer. However, there is no tenderness. The patient has difficulty in swallowing. Severe spasm stops respiration, causes cyanosis and threatens suffocation. Breathing is shallow due to rigidity of the chest muscles. The group of muscles in the neighbourhood of the wound does not show more spasm than the rest. Defecation and urination become involuntary.

The patient has a clear mentality, with an intense appreciation of suffering. Profuse perspiration is independent of temperature or intensity of muscle spasms. The temperature is normal except when pulmonary complications set in. Hyperpyrexia is common before death. Death is due to respiratory failure from prolonged spasms of respiratory muscles and cardiac failure secondary to exhaustion.

Prophylactic Use of Tetanus Antitoxin

Diagnosis rests on clinical rather than laboratory findings. The safest procedure is to administer 1,000 to 5,000 units of tetanus antitoxin, in the presence of purely presumptive diagnosis, soon after any injury. Since antitoxin disappears from the blood in the course of 7 to 14 days, a second injection may be necessary in 6 to 8 days. Antitoxin confers passive immunity only, and is protective in patients not actively immunized.

Chemotherapeutic agents cannot be relied on to prevent the development of the disease.

The local lesion should receive sound surgical treatment, i.e., thoroughly cleansing the wound and probable excision. Bacterial metastasis is possible from the sites of tissue damage. Primary or delayed closure depends on the condition of the wound. Graham and Scott recommend dressing of post-operative wounds with penicillin compresses and in some cases with activated zinc peroxide.

Antitetanic serum is specially indicated in injuries considered likely to be contaminated with spores of *B. tetani*. Frequently it is difficult to decide whether or not a patient should receive A.T.S. Hence, one person may receive serum unnecessarily, whereas in another case, failure to administer serum may be a basis of a suit of malpractice.

Acquired Immunity

Anaerobic cultures of *B. tetanus* at 34°-35°C produce maximum toxin content in about 10-14 days. From then on it deteriorates rapidly.

An animal (e.g., horse, man), injected with tetanus toxin (tetanospasmin) develops an antitoxin which protects it from infection by tetanus and its toxin.

Tetanus toxoid which is prepared from tetanus toxin by the formation detoxifying procedure of Ramon, requires weeks or months to develop the immunity. The duration of basic immunity produced by the usual three doses of 1 c.c. alum precipitated toxoid or the fluid type is generally believed to remain effective for one or two years. It is generally advocated that stimulating or "booster" doses of toxoid be given at yearly intervals. It is believed that the ability to respond to these is retained for years or perhaps indefinitely and thus maintain high levels of antitoxin. It has been proved in the last war that active immunization with tetanus toxoid reduced the incidence of tetanus to low figure. An accepted prophylaxis for a person who has already been actively immunized to tetanus toxoid is to receive a booster dose of 1 c.c. at the time of injury.

During a Commando raid in Dieppe, tetanus was absent in the wounded. The severe fighting before the Dunkirk evacuation provided a good test of the efficiency of tetanus toxoid. Many men arrived in England 5 or 6 days after being wounded without having received antitetanic serum or booster doses of tetanus toxoid. 90% had been actively immunized within 2 years of injury. Eight cases of tetanus appeared among the 10% who either received no toxoid, or had been inadequately immunized.

In the U.S.A. Army, 4 cases of tetanus are reported among those who had not received the toxoid. The U.S.A. Navy had one case of tetanus in an actively immunized sailor, who recovered. A French soldier who received toxoid had non-fatal tetanus.

During World War I, the British army had 250 cases with mortality of 43.2%. In World War II tetanus was practically eliminated even though many battles were fought in areas known to have a high incidence of the disease.

An attack of tetanus supplies neither a basic or humoral immunity. In other words, the human body does not develop active immunity following an attack of the disease. The possibility of second or third attacks of tetanus may occur because it is not an immunizing disease. The latter attack may be traceable to a new lesion or to the original focus of infection which on being subjected to treatment reactivates the dormant spores of *B. tetani*.

Tetanus antitoxin is not demonstrable in specimens of blood serum obtained from patients who have recovered from tetanus in the distant past. Patients who have recovered from tetanus require

the same artificial antigenic stimulus (tetanus toxoid) as those who have not had the disease.

Treatment

1. **Prophylactic**—1,000 to 5,000 units of tetanus antitoxin for 3 days, then weekly for 3 weeks may produce sufficient passive immunity to reduce development of tetanus, may prolong the incubation period, or may reduce the mortality. Some authorities suggest giving 500 units of antitoxin combined with 1.5 c.c. of tetanus toxoid, followed by second and third toxoid injection at intervals of weeks.

Prompt administration of tetanus antitoxin does not always prevent the occurrence of tetanus. Smith reported 6 failures with antitoxin prophylaxis in London during two years of World War II. Four of the six patients developed severe generalized forms of the disease, and two of these died despite intensive active treatment.

2. **Serum Therapy—Curative.** Tetanus antitoxin has no influence upon the germination of spores and multiplication of organisms. It neutralizes the toxin as soon as it is formed and prevents it from reaching the nerve cells. Toxin which has gained access and has once attacked a living nerve tissue cannot be neutralized by antitoxin. It could only prevent further absorption of toxin.

Conflicting evidence and considerable difference of opinion prevails in respect to the therapeutic value of specific antitoxin. The status of active serotherapy is still controversial. However, in treating a disease, as serious as tetanus, it seems advisable to err on the side of giving too much rather than too little of "curative serum." Sufficient antitoxin should be given to neutralize the effects of toxin that has been and is still being produced. Relative acuteness of tetanus infection definitely influences the results of antitoxin therapy. Patients who have had a short incubation period and fulminating symptoms are considered to require large amounts of antitoxin. Success depends chiefly on the promptness of treatment. The disappointing benefit of antitoxin is limited because it has no influence on toxin already united with the nerve tissues.

Intravenous injection brings the antitoxin in contact with the toxin most rapidly. Intravenous and intramuscular administration only is recommended by Abel, while the spinal route is of discredited value and thought by some to be useless. Whenever antitoxin is given, adrenaline in a syringe should be available for immediate use. Crook County Hospital found no decrease in mortality in fifteen years in spite of increased use of antitoxin. It is obvious that the specific therapy for tetanus is unsatisfactory and requires investigation along new lines.

(b) **Treatment of Local Lesions**—Surgical treatment of local lesions is not an immediate need.

Such procedures do not influence the course of the disease after it has developed. In the presence of purulent collections, debridement, drainage and removal of any foreign bodies from wounds are necessary. It acts as a focus of infection, and possibility of recurrence cannot be denied.

Hydrogen peroxide, Dakin's solution, potassium permanganate, and other oxidizing solutions do not seem to affect the natural course of the tetanus intoxication. It is doubtful if they are of any use.

(c) **Sedative Therapy** to control the spasms.

It is dangerous to omit this in any patient with tetanus. However, too much sedation increases the danger of serious pulmonary complications.

(i) **Environmental:** The room should be quiet and darkened. Visitors should be excluded. Expert nursing is necessary night and day.

(ii) **Pharmacologic:** Avertin, rectally, in dosage according to the severity of the spasms, can be given repeatedly over a period of many hours or even days. Recovery without liver damage has been reported following 170 grams in 12 days. Barbiturates also control convulsive seizures. Sodium Amytal, seconal and nembutal may be given by mouth, by rectum or intravenously. Bromides and chloral hydrate are useful. Paraldehyde is not as effective. Morphine should be avoided, because of respiratory depression it causes. Curare intravenously and intramuscularly may control the convulsions temporarily. The amount used must be just sufficient to control spasms. The experimental work indicates that continuous relaxation at or near the level of respiratory paralysis results in hemoconcentration and eventually in a severe state of shock, which apparently arises from loss of fluid from the vascular system into the relaxed muscles. So far, only sporadic attempts have been made to employ curare in tetanus.

Magnesium sulphate, 25% 2 c.c. per lb. body weight may be given subcutaneously or intramuscularly. Intravenous administration of 6% solution, at a rate of 3 c.c. per minute, until relaxation is obtained, is effective for 30 minutes. Intraspinal administration of 25% solution, 1 c.c. per lb. body weight is supposed to give sustained action from 12 to 30 hours. Abel condemns the use of magnesium sulphate as impractical because the risks are far from negligible.

Subcutaneous injection of phenol 2-3% was based on its power of neutralizing toxin *in vitro*. Intrathecal injection of 1/400 solution has been tried, but there is no evidence to prove that it is useful.

(d) **Maintenance of Strength**—The patient must have at least 2,000 calories daily in the form of glucose drinks, egg noggs, etc., given by mouth if he can swallow, or if he cannot, through a stomach tube. Intravenous glucose may be the only possible means of nourishment.

Oxygen should always be available at the bedside, for administration during respiratory spasms.

Course and Prognosis

Abel says that the outcome of tetanus is predetermined long before symptoms appear. It is usually very unfavourable in cases having short incubation period. If incubation period is longer than 7 days and "the period of onset" (period between the first symptom and the first generalized reflex spasm) is more than 2 days in an otherwise healthy individual, the chance of recovery is good. With figures less than above, the prognosis becomes rapidly worse. Cook County Hospital reports a mortality of 84% where incubation period is under 10 days, and mortality of 25% where incubation period is 14 to 21 days.

The Preventive Medical Services of the Dept. of Health and Public Welfare of Manitoba has submitted the following figures on tetanus in Manitoba for the years 1941-1946 inclusive.

Year	Cases	Deaths	Mortality %
1941	1	1	100
1942	3	1	33½
1943	2	1	50
1944	2	0	0
1945	3	3	100
1946	1	1	100

Autopsies show no significant lesions. The initial point of infection may be small and innocent in appearance, and organisms hard to find.

The factors which determine whether the patient will live or die are:

(A) Severity of Underlying Disease:

- General health.
- Extent and severity of spasms.
- Ability to take nourishment or difficulty in swallowing and respiratory obstruction by accumulated secretions.
- Age of the patient—grave over 50 years, even in mild cases.

(B) Complications:

- In cases of spasms of the larynx, with severe stridor, which relaxes only when the patient appears on the point of death. Tracheotomy is indicated.
- Pneumonia should be prevented by frequent turning of the patient in bed, and by the use of sulfa and penicillin.
- Pulmonary atelectasis is a result of aspiration of secretions.

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Case Report

The following is a case report of tetanus (lock-jaw), under my care.

The patient was Polish, male, age 52, fox farmer, living 12 miles south of Winnipeg. On Jan. 17, 1947, at 9.30 a.m. while grinding up horse meat, his left third finger was caught in the electric grinder which amputated the distal half of the terminal phalanx. He soaked his bleeding finger in a salt solution. At 10.30 a.m. he was brought to St. Boniface Casualty, where he was examined and given morphine, gr. ¼, and sent to the operating room. At 11.15 a.m., under brachial plexus block, the forearm and the hand were scrubbed and the wound washed. When the stump was trimmed bleeding was active. A full thickness graft, taken from the flexor surface of the left forearm, was sutured in place with silk and vaseline pressure dressing applied. Verbal orders were given to the operating room nurse to give this man a prophylactic dose, 1,500 units of antitetanic serum.

Jan. 18-19—Post-operative course good, moderate pain. Temperature ranging to 100 F.

Jan. 20—Temperature 98 F. Dressing changed. Some dried sanguinous discharge noted. Penicillin, 50,000 units started, and repeated every 3 hours for the next 3 days.

Jan. 22—Dressing changed. Small amount of thin purulent discharge at base of the finger nail, with foul odor, noted. Dry dressing applied.

Jan. 23—Discharged, walking. Temperature had been normal since second post-operative day.

Jan. 26—Long distance phone call by his son, describing the patient as moribund, and refusing to be brought to Winnipeg. Ordered immediate admission to the hospital. Second admission on Jan. 26, at 9.15 a.m. Patient told the intern that he had felt well following his discharge from the hospital. He volunteered that on Jan. 24 he felt "wonderful." Jan. 25, on awakening, he noted some neck stiffness, and on the morning of Jan. 26, family stated that he was unable to move or talk. From then on we have been unable to ascertain the course of his illness, except during the same afternoon he got severe abdominal pain.

Physical Examination

On admission, patient presented a picture of profound illness. He was alert and spoke with closed jaws. Features were drawn and anxious, skin ashen and gray and bathed in cold perspiration. Pulse weak, regular, rate 70. Temperature 96. R. 34, B.P. 120/90.

Face—Characteristic "Risus Sardonicus," forehead wrinkled, eyes partially closed, lips slightly protruded, and the corners of the mouth retracted. The appearance being that of a patient with a frozen grin.

Mouth—Endentulous. Unable to open jaws.

Neck—Absolute rigidity with slight opisthotonus.

Abdomen—Board-like and tender. (Gave a history suggestive of Peptic Ulcer.)

Extremities—Slight spasticity. Knees and elbows flexed. Increased deep reflexes.

Treatment

After the Sensitivity Test, 50,000 units of tetanus antitoxin was given intramuscularly, followed by 40,000 units intravenously. Chloral hydrate, gr. 30, given per rectum and repeated as necessary. The patient had a private room and special nurse.

The patient had frequent spasms by day and night. Passive movements caused him to cry out in pain and caused increased general abdominal and masseter rigidity. When undisturbed he was fairly comfortable. He took fluids, egg noggs, and Graham diet freely. Catheterization was necessary only on the day of admission, from then on micturition was involuntary.

Jan. 27—Appeared somewhat better and less spastic during most of the day. Temperature 98°. Pulse rising from 90-110, R. 34. Considerable thick, tenacious mucus had to be aspirated repeatedly from the throat and larynx. He was given 50,000 units tetanus antitoxin intramuscularly, and 40,000 units intravenously. Penicillin in beeswax, 400,000 was started, and given daily against chest complications. At 7.00 p.m. while being turned on his side, he had first severe tonic spasm of the larynx with flexion contraction of the extremities, and spasms of facial muscles. The thick, tenacious sputum, accumulated in his throat leading to deep cyanosis. Pulse 120, B.P. 130 syst. The patient became unconscious.

Emergency Treatment: Curare—6½ c.c. intramuscularly, and 2 c.c. intravenously given. Intratracheal tube put in through the nose, oxygen administered, and artificial respiration applied. Jerky respiration began in ½ to ¾ of an hour, and by 12.00 he was again conscious.

Jan. 28—Patient relatively comfortable. Intratracheal tube was removed, and in fifteen minutes the patient was in severe respiratory distress. Curare 2½ c.c. i.v. given 8 oz. of muco-purulent sputum was aspirated from the lung by a catheter under laryngoscopic vision. Increasing respiratory difficulties, with deep cyanosis occurred with each spasm. Mild glottal edema resulted from intubation. Temperature 98. P. 110, R. 34.

Tracheotomy under local anaesthetic was done in noon. Considerable respiratory relief noted, but

increasing tenacious secretions had to be repeatedly sucked out through the tracheotomy tube. Despite tracheotomy and curare 2 c.c. spasms continued and caused cyanosis. Transfusion of 500 c.c. of blood given, and as a supportive measure, 5% and 10% glucose administered by vein. Tetanus antitoxin, 50,000 units, was repeated.

Jan. 29—Patient is conscious. Pulse, temperature and respiration unchanged, until early afternoon. Spasms coming more frequent and lasting longer. Liquids taken in large quantities in morning. Pulse weaker. Coramine intravenously. In the afternoon 4½ c.c. of avertin in 150 c.c. distilled water were given, per rectum. This gave good narcosis and relaxation. Curare 2 c.c. was also given. During the afternoon and night the pulse was 115, temperature 99.4, respiration 42, weak, and gasping, the general condition rapidly deteriorated.

Jan. 30—Condition very low. Temperature suddenly shot up to 102 F, P. 120, shallow, gasping weak, respirations 50 per minute. At 12.00 noon sudden pallor noted and respiration ceased suddenly.

Summary of the Case Report

1. A small injury in a farmer, received orthodox surgical treatment inside 2 hours. Premonitory symptoms of buoyancy noted on the 7th day and full blown symptoms of tetanus appeared on the 8th day.

2. Treatment began on the 2nd day the symptoms appeared. This patient received 90,000 units of tetanus antitoxin i.v. and 140,000 units i.m. Altogether 230,000 units in 3 days. He also received 8½ c.c. curare i.v. and 7½ c.c. i.m. in 3 days.

3. For sedation, chloral hydrate gr. 30 p.r.n. and avertin 4½ c.c. per rectum were used.

4. Intranasal oxygen was administered almost continuously. Tracheotomy done on the 3rd day after appearance of symptoms.

5. Blood transfusion and intravenous glucose used as supportive measures, at all times patient food intake was satisfactory.

6. Do not depend on verbal orders being carried out. Write them down.

7. In view of the high frequency of small abrasions, scratches and nail punctures for which prophylactic antitoxin would not ordinarily be used and since the results obtained with antitoxin are admittedly unreliable, a plea is made for active immunization of adults and children.

TUBERCULOSIS

Pneumothorax—Present Trends With Special Reference to the Management of Refills by the General Practitioner

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Manitoba Sanatorium, Ninette, Manitoba

Pneumothorax still holds an important place in the collapse treatment of pulmonary tuberculosis. In recent years its application has been considerably curtailed by the increasing use of surgical procedures giving permanent collapse, the chief of which is thoracoplasty.

Some indication of the relative frequency with which pneumothorax and thoracoplasty are now being used may be seen in 1947 annual sanatoria reports for Manitoba and Saskatchewan. In Manitoba 177 new cases were treated with pneumothorax, while 65 received thoracoplasty. In Saskatchewan the numbers were 62 for pneumothorax, 58 for thoracoplasty. In other words, Manitoba still treats over twice as many patients with pneumothorax as with thoracoplasty. In Saskatchewan the trend would seem to be more definitely away from pneumothorax with frequency of use of the two procedures being almost equal. It should be understood, of course, that in patients requiring collapse therapy the indications for choosing either pneumothorax or thoracoplasty are not often equally balanced, with selection depending on the personal preference of the phthisiologist. This does happen in some lesions to be mentioned later, but often, as in those with extensive cavitation, there is a clear-cut case for thoracoplasty; again in less extensive disease that may look treatable by pneumothorax the space may be found obliterated so that collapse must be obtained by thoracoplasty. Then, too, there are other measures such as phrenic interruption, paraffin pack, extrapleural pneumothorax, and lately, pulmonary resection, that need to be considered. The fact remains, however, that pneumothorax is still extensively used, as witnessed by the 14,737 refills given in the clinics and sanatoria of Manitoba in 1947.

Pneumothorax has gone through some interesting ups and downs in arriving at its present status. Its first general use in Western Canada during the First World War met with failure and disappointment, because those chosen for treatment had far advanced, often hopeless disease. The procedure was almost dropped until around 1925 when it began to be used in more hopeful cases with only moderate amounts of disease. For the next decade it enjoyed its greatest popularity and effected many brilliant "cures" and not a few miserable

failures. At the end of this period, that is about 1935, the modern thoracoplasty, offering safe and effective permanent collapse, came into common usage and soon superseded pneumothorax as the procedure of choice for all extensive, and for many moderately advanced lesions.

As pneumothorax was gradually pushed out of the field of collapse for extensive cavitated disease, its value in the treatment of minimal lesions became increasingly recognized. This brings us to present day concepts of its indications and use, and in the last few years its limitations have become still further defined.

All agree that it should not be used in far advanced disease; opinion is not unanimous in moderately advanced lesions. There is no doubt that many of these respond well; others would have been better for thoracoplasty, especially where collapse by pneumothorax is interfered with by adhesions. The situation as regards minimal tuberculosis is even further complicated. In some clinics bed rest alone, or with phrenic interruption is preferred to pneumothorax; others are advocating apical thoracoplasty where disease is confined to the apical zone or area above the clavicle. Many treatment centres advise and practice bronchoscopy in all cases before attempting pneumothorax in an effort to rule out the presence of tracheobronchitis, a condition that is often aggravated by pneumothorax.

There seems no doubt that the swing away from pneumothorax in the lesser lesions is due to a great extent to improper control of refills. Too often the patient is left after several years of pneumothorax with a lung that cannot re-expand. This may be due to pleural thickening from the formation of fluid; more often it is simply the result of giving too much air and maintaining too flat a collapse. In such a case the treatment may be worse than the disease; one should never sacrifice the function of a whole lung to cure a small lesion and even with more extensive lung involvement a more economical result should be desired. Herein lies probably the strongest argument for apical thoracoplasty in minimal disease. With disease in the extreme apex, a one stage 4 or 5 rib thoracoplasty will give adequate collapse with only slight reduction in vital capacity. However, end results should be equally good in well controlled, selective pneumothorax, the significant difference being the reversible nature of the late treatment as against the permanent collapse of thoracoplasty. The desirability of permanent collapse in minimal lesions remains an open question and varies, of course, with each case treated. When pneumothorax fails, due to obliteration of the

pleural space, the case becomes much stronger for apical thoracoplasty. Minimal disease located in subclavicular and mid-lung zones does not lend itself to limited collapse by thoracoplasty, and the indications for pneumothorax, when obtainable, seem clear-cut in the absence of other contraindicating factors.

Though the general practitioner is not primarily concerned with the indications for induction of pneumothorax, an appreciation of the problems involved, as outlined above, should aid him in controlling refills. Most patients carry pneumothorax for some time after leaving Sanatorium, and not a few attend their home doctors for refills. In controlling refills it should be kept in mind that pneumothorax is essentially a treatment of relaxation rather than collapse. The fact that most collapsed lungs expand considerably with each inspiration can be readily seen at fluoroscopy, and in many cases complete collapse and compression of the lesion is neither possible nor desirable. Too often such an attempt leads in the end to a permanently unexpandable lung, as mentioned above. In actual practice one must also avoid the condition of too little collapse where

the lung may be injured at refills or the collapse lost altogether.

The two most urgent requirements in giving refills outside the sanatorium or clinic would seem to be adequate fluoroscopic control and proper pneumothorax equipment. If at all possible the patient should be fluoroscoped before and after treatment. A chest x-ray should be taken at least every 3 months. This can usually be done at one of the diagnostic centres, but if not can be sent in for reading and advice. Satisfactory equipment is not expensive and can be arranged for through the Sanatorium at Ninette or the General Tuberculosis Clinic. It should always include a water manometer for recording intrapleural pressure and connection and bottle stoppers should be kept air tight so the apparatus will deliver an accurate amount of air.

Details of fluoroscopic control and pneumothorax technique are beyond the scope of this article, and can be more easily observed on any pneumothorax morning at the various treatment centres. Your interest will be welcomed and help given, whenever possible, with your refill problems.

PAEDIATRICS

Edited by S. Israels, M.D.

Abstract

Severe Erythema Multiforme of the Pluriorificial Type (Stevens-Johnson Syndrome) Resulting in Blindness in a Patient Treated with Trimethiodione (Tridione), by Bertram Shaffer and Paul Morris, Pediatrics, Vol. 2, pp. 30-33, July, 1948.

That Trimethiodione (Tridione) can cause unpleasant and serious side effects has been known for some time. The drug finds its only use in the treatment of petit mal. Such side effects are severe agranulocytosis, photophobia, increased grand mal attacks and dermatitis.

The case reported is that of a white male, age 6½ years, who was treated with Tridione for petit mal and anterior pituitary extract for retarded growth. After 17 days of the treatment the boy developed a red spot on his buttock at the site of the pituitary extract injection. From this site a severe generalized skin eruption spread over the whole body and went through all the stages from erythema to bullae. Treatment consisted in stopping the drug and in the administration of penicillin. Despite this, there was severe involvement of the conjunctivae with subsequent corneal opacities and blindness. Although severe cutaneous and mucus membrane reactions were evident, there was no agranulocytosis or anemia.

A chest film revealed areas of pneumonic consolidation. Attempts to establish the allergen as Tridione or pituitary extract by passive transfer method were unsuccessful.

It is assumed that this is a case of Stevens-Johnson Syndrome on the basis of drug allergy. 19 references.

Sydney Israels.

Acute Intussusception in Infancy and Childhood, by F. H. Magney, Minnesota Medicine, 30:257, March, 1947.

This study is based on 58 cases of acute intussusception coming to operation in two hospitals from 1921 to 1945. The youngest child in the series was 7½ days old and the oldest was 12 years. 74% were less than one year old and the highest incidence came at 6 months. The prevalence of cases between 4 to 10 months is thought to be due to change of diet from liquids to solids which may produce the mechanical imbalance that causes the bowel to invaginate. Meckel's diverticulum was found in 2 cases. 60% were found in boys and 40% in girls.

The three cardinal symptoms found in this condition were intermittent colicky pain, vomiting and bloody stools. 73% showed all of these symptoms and all had at least one of them. In

60% an abdominal mass was felt. In 20% a mass was felt rectally which meant that the intussusception was of long standing and had advanced well down the large bowel.

The onset was usually sudden and consisted of colicky abdominal pain lasting only a few seconds and occurring every 10 to 30 minutes. The child becomes intermittently pale, draws up its legs and cries out or utters grunts during the paroxysm. Later pallor, sweating, dehydration and finally shock occurs.

Vomiting occurred in 88% of the cases. Blood in the stool or on the examiner's finger occurred in 63.3%.

Intussusception did not seem to appear especially in the poorly nourished child but rather in the healthy well-nourished one.

It is difficult to palpate the mass in a well-nourished child. It may be necessary to give an anaesthetic to relax the abdominal muscles before the sausage-shaped mass can be defined. An intussusception protruding through the anus may look like a prolapsed rectum.

The treatment of dehydration, acidosis, toxicity and shock calls for a pediatrician's experience in administering fluids and restoring the electrolytic balance.

Drop ether was the anaesthetic of choice used in this series of operations.

A right rectus incision was the incision most used because it gave the best exposure to the region of the ileocecal valve. Most authors advise against removal of the appendix which adds to the operative trauma and shock. In 5 cases some method of fixation was done with the idea of prevention of recurrence. A resection of bowel was necessitated in 7 cases with a mortality of 57%. Primary anastomosis resulted in 40% recovery.

The 58 operations (2 necessitating a second operation) resulted in 15 deaths (25.9%). The

mortality was 30.8% when the stools contain blood, which was considered a later sign, and 15% when blood was absent.

B. Shuman.



Galactosemia, by E. O. Goldstein and J. M. Ennis, *Journal of Pediatrics*, 33:147-154, August, 1948.

Galactosemia or galactose diabetes is a metabolic disorder of infancy characterized by failure to gain weight and to grow properly, an enlarged liver and spleen, melituria and albuminuria.

There have been 8 reported cases since 1917, 50% of the reported cases have shown, besides the above characteristics, cataracts. The child may also show persistent jaundice during the early months of life, positive Van den Bergh, secondary anemia, mild azotemia, osteoporosis, or evidence of mild liver damage.

Diagnosis is suggested by the 5 cardinal signs and symptoms and proven by identification of the urine sugar as galactose. Removal of milk from the diet with substitution of Nutramigen, etc., results in the disappearance of all signs and symptoms.

It is felt that the primary trouble is a lesion or functional disturbance of the liver that lowers the ability of the organ to convert galactose into glycogen without impairing other functions of the liver. Milk in the diet causes high blood galactose which stimulates the mechanism for lowering the blood sugar; but this acts only on dextrose, converting it to glycogen and storing it in the liver. This results in a relative dextrose starvation, accounting for the symptoms of dystrophy. However, hypoglycemia is not a part of the picture. The high blood galactose may interfere with absorption of glucose from the intestine. Galactose fed to rats will cause cataracts.

7 references, 4 figures.

H. Baine.





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Executive Meeting

At a meeting of the executive of the General Practitioners Association of Manitoba held on the evening of August 27th, the fee schedule of the Manitoba Medical Services, especially that portion which deals with an increased percentage given to specialists, was under discussion.

It was felt that the fairness in the advantage given to specialists in this part of the fee schedule was very questionable in so far as the General Practitioners of this province are concerned. It

was also felt that since at the present time the Manitoba Medical Services was only able to pay a mere percentage of the fee schedule that it would be fairer to all that no extra percentage of fees be given to anyone until such time that the Manitoba Medical Services are able to pay 100% of their fee schedule.

It being obvious that while the Manitoba Medical Services are paying an extra percentage to select groups for identical work that the General Practitioners are being taken advantage of and being prevented from receiving 100% of the fee schedule.

The above was passed as a motion by the executive of the General Practitioners Association.

By the fee schedule is meant the last publication of the Manitoba Medical Association yellow book schedule of fees, General Practitioners division, and where procedures are not mentioned in this section, and are mentioned in the specialists section, the latter schedule of fees be adopted for these procedures.

The Role of the General Practitioner at the 1948 C.M.A. Meeting in Toronto

V. F. Bachynski

The General Council met in the Roof Gardens of the Royal York Hotel, overlooking Lake Ontario. Two days were devoted to the Reports of the Executive Committee and 20 Standing Committees. There were 125 delegates registered, out of a possible 143. Many took part in the discussions of the proceedings. Reports of the Committees were either adopted, amended or rejected.

Representatives on the General Council from the Manitoba Division were the following: Drs. Bachynski, Eleanor Black, Fahrni, Goodwin, A. Hollenberg, Q. D. Jacks, R. Martin, MacFarland, Secretary of the Manitoba Division; McGuinness, President of the Canadian Medical Association; Richardson, President of the Manitoba Division; Schoemperlen, Anna Wilson and MacMaster, Manitoba Medical Service, as a guest.

When the delegates took their places, the meeting of the General Council was opened with a few remarks of welcome from Dr. Routely and Dr. McPhedran, and then each delegate rose to his feet and announced himself by name, and the division he represented.

Most striking aspect of the C.M.A. meeting was the emphasis laid on the General Practitioner. Much active interest and discussion took place in the General Council and outside by the general

practitioners and other sections on the present state of general practice. The general practitioner began to appear once again in his rightful perspective.

All preliminary work, preparatory to the meeting of the general practitioners, was done by your representatives on the General Council. This culminated in a well attended meeting on June 23rd, where a resolution was passed to form a section of General Practice within the structure of the C.M.A.

June 21, 1948, just before noon:

Arising out of the Report of the Executive Committee on General Practitioners, the special committee headed by Dr. W. Wilson, a small amendment was made to the report and the discussions were deferred until the Report on Constitution and By-laws, and the Report of the Committee on Medical Education came under discussion.

Dr. W. Wilson, not being present at the meeting due to illness, was replaced by Dr. W. V. Johnston, Lucknow, Ont.

Committee on Constitution and By-laws

Dr. Harris, chairman of the committee, was not entirely certain if changes are necessary in the present constitution. He felt it was quite flexible as it is if the general practitioner's section was to be formed. Drs. Bachynski and Jacks pointed out that there was a need of revision of the constitution of the C.M.A. to ensure adequate latitude for

the activities and interests of the general practitioner. They pointed out the general practitioner's problems in Manitoba, also what led to the formation of the General Practitioners Association of Manitoba, along with its aims and objects. An appeal was made for a General Practitioner organization on a national scale. In Canada 76% of the 13,000 doctors are general practitioners, and the need of undivided unity between general practitioners and specialists was stressed. Plea was made to avoid a replica of the American Academy of General Practice, which had no official connection with the American Medical Association. For the good of the profession at large, the general practitioners should not break away, but form a section within the Canadian Medical Association as its parent body.

Committee on Medical Education

Chairman, Dr. Geo. Hall, Representative of the Association of Canadian Medical Colleges, Dean of the Medical College in London, Ont., took a favourable attitude towards training of the general practitioner to fit him for his special tasks of today. Reorientation must come from the general practitioner himself. He also pointed out the poor response to the questionnaire which appeared in the journal of the Canadian Medical Association.

Proceedings of the General Practitioners Meeting, June 23rd, at 5 p.m., in the Ballroom of the Royal York Hotel

Dr. W. V. Johnston, Lucknow, Ont., chairman of the Committee on Economics, and President-elect of the Ontario Medical Association, was in the chair. Dr. Johnston was replacing Dr. W. Wilson. Dr. Johnston is an outstanding general practitioner in Ontario. On June 24, 1948, he presented an interesting paper entitled "General Practice in the Changing Order," which already appeared in the J.C.M.A. August issue.

Out of 2,024 doctors attending the convention, approximately 350 turned out to this meeting in spite of the late hour, and the President's reception forthcoming the same evening. This was considered to be a large attendance.

Dr. A. Hollenberg was first to address the meeting. He reviewed the general practitioner's problems and pointed out that the family doctor is an indispensable cog in the complex machinery of providing medical care to the people. He urged organization of the general practitioners for self-improvement and for self-protection. He spoke well and to the point. His talk relieved us of the strain which we anticipated might fall upon us as it did during the discussions in the General Council.

Drs. Bachynski and Jacks stressed that proper emphasis must be placed on training of the general practitioners by proper under-graduate teaching and preceptorship. This means direct representation and direct participation in the teaching in our medical schools, and in the work of the teaching staffs of our hospitals by the general practitioner. Such facilities and provisions are already in existence in some centres in the United States. The General Council listened with interest and showed good tolerance to the discussions. Drs. Johnston and Tuttle, Lethbridge, Alta., spoke briefly to the report. Dr. Archer, Lamont, Alta., expressed keen interest in our work and gave us encouragement during a personal interview. Dr. Kelly, assistant secretary, at all times was ready to give us a helping hand. The executive were quite in sympathy to form a General Practitioner Section, even if it was necessary to initiate necessary changes in the Constitution and the By-laws.

Dr. M. R. Stalker, Ormstown, Que., President of the Quebec Medical Association, in his vote of thanks to the Ontario Medical Association, at a dinner to the General Council, praised the work that is being undertaken. Dr. McGuinness paid tribute to the general practitioner in his Presidential Address.

Dr. Anna Wilson reviewed the circumstances that led to the formation of the G.P.A.M. She pointed out that our objects are:

1. To guard the rights of the public, so that the service of the general practitioner or family doctor will not disappear.

2. To guard the rights of the general practitioner, so that the high standard of service will be maintained.

3. To work in co-operation and harmony with all organizations of the medical profession.

The hospital bed situation was aired and pointed out that hospital affiliation need not be a favour or a privilege, but a right to every general practitioner when the public expects more expert care.

Dr. Jacks pointed out that section of the General Practice within the Canadian Medical Association should not be hampered, but on the contrary, have wide latitude of freedom for its activities.

Dr. Bachynski suggested that a Steering Committee be formed and that representation be granted to us on the Committee on Constitution and By-laws during the revision of the By-laws. Moved by Dr. R. Martin, and seconded by Dr. A. Wilson that "General Practitioner section be formed within the structure of the Canadian Medical Association." A Steering Committee was elected to give suggestions for changes in the Constitution, and to carry on the spade work until the C.M.A.

meets again in June, 1949. Those elected were:

1. W. V. Johnston, Chairman, with power to choose his vice-chairman.

2. Dr. Kelly, Assistant Secretary of C.M.A., as Secretary.

3. Two representatives from each division to be appointed by the respective divisions.

They are to meet in conjunction with C.M.A. in Saskatoon, in June, 1949.

Dr. Hollenberg made the following request from the Steering to the Constitutional Committee:

"Within the provisions of the C.M.A. that there be afforded to the general practitioners such measures of organization and financial support by

the executive of C.M.A. as to enable them to form a section and to certify their members specially competent in any field of medicine."

Discussion of diverse opinion followed from the floor, some attacking the motion. These were ably refuted by Dr. Hollenberg. This request, we hope, will bring about the necessary changes in the By-laws of the Canadian Medical Association, to allow the General Practitioner the necessary freedom to form its own executive, allow freedom of action in education, also allow the general practitioner to institute standards of recognition such as certification in any line of general practice that he is proficient in.

BOOK REVIEWS

Symposium on Medicolegal Problems. Edited by Samuel A. Levinson, M.D., Ph.D. University of Illinois College of Medicine.

There are a number of points where medicine and law touch each other. The most obvious is the doctor in court giving expert testimony but there are others where the contact is apparent. For example, what are the medicolegal implications of artificial insemination, of operations to produce sterility, of blood tests for disputed paternity, of chemical tests for intoxication. This little (254-page) book goes into these matters. First it presents the medical viewpoint, then the legal aspects and finally a general discussion on each of these topics.

The problems considered here under the co-sponsorship of the Institute of Medicine of Chicago and the Chicago Bar Association do not apply so pointedly in this country. One gathers that professional ethics are not high and that dishonesty is common in certain parts of the United States, but in essence the problems still concern us and anyone who is in need of help in their solution is advised to consult this authoritative reference book.

Correlative Neuroanatomy, 4th revised Edition \$3.00, is a comprehensive manual for the student in gross anatomy, neuroanatomy, neurodiagnosis and neurology which correlates the anatomical and physiological background with the clinical findings of neurological disorders. Included are numerous diagrams which clearly show the distribution and

functional components of the cranial, spinal and autonomic nerves, and the essentials of brain and spinal cord localization.

The first part deals with the peripheral nerves, and each major nerve is well illustrated and systematically described. The autonomies are concisely discussed including the physiology and pharmacology of the system.

The second section is on neurodiagnosis and includes a discussion of the anatomy, physiology and localization in the brain and spinal cord. The subjects of motion, sensation, reflexes, trophic changes, electrical examination, intracranial pneumography and examination of the cerebrospinal fluid are thoroughly outlined. A discussion of electroencephalography with representative electroencephalograms has been added.

The third section of the book deals with diseases and disorders of the central nervous system, and has been completely rewritten and enlarged.

The appendix gives a complete list of neurological signs and syndromes, a brief discussion of muscular dystrophies and atrophies and an outline of the neurological examination.

The text is arranged in the simplest way with headings, sub-headings, indented margins and brief, unembellished data. This saves the reader much time. The illustrations are diagrammatic, abundant and so arranged as to bring them side by side with the explanatory text. It has been found useful by students and also by practitioners who want to determine facts quickly. There are 156 pages and a full index. The price is \$3.00 and the publishers are University Book Publishers, Post Office Box 761, Palo Alto, California.

Medico-Historical

J. C. Hossack, M.D.

Scurvy Two Hundred Years Ago

Soon after our passing Streights Le Maire, the scurvy began to make its appearance amongst us, and our long continuance at sea, the fatigue we underwent, and the various disappointments we met with, had occasioned its spreading to such a degree that at the latter end of April there were but a few on board who were not in some degree afflicted with it, and in that month no less than forty-three died of it on board the Centurion. But though we thought that the distemper had then risen to an extraordinary height, and were willing to hope that as we advanced to the northward its malignity would abate, yet we found, on the contrary, that in the month of May we lost near double that number; and as we did not get to land till the middle of June, the mortality went on increasing, and the disease extended itself so prodigiously that, after the loss of above two hundred men, we could not at last master more than six fore-mast men in a watch capable of duty.

This disease, so frequently attending long voyages, and so particularly destructive to us, is surely the most singular and unaccountable to any that affects the human body. Its symptoms are inconstant and innumerable, and its progress and effects extremely irregular; for scarcely any two persons have complaints exactly resembling each other, and where there hath been found some conformity in the symptoms, the order of their appearance has been totally different. However, though it frequently puts on the form of many other diseases, and is therefore not to be described by any exclusive and infallible criterions, yet there are some symptoms which are more general than the rest, and, occurring the oftenest, deserve a more particular enumeration. These common appearances are large discolored spots dispersed over the whole surface of the body, swelled legs, putrid gums, and, above all, an extraordinary lassitude of the whole body, especially after any exercise, however, inconsiderable; and this lassitude at last degenerates into a proneness to swoon, and even die, on the least exertion of strength, or even on the least motion.

This disease is likewise usually attended with a strange dejection of the spirits, and with shiverings, tremblings, and a disposition to be seized with the most dreadful terrors on the slightest accident. Indeed it was most remarkable in all our reiterated experience of this malady, that whatever discouraged our people, or at any time damped their hopes, never failed to add new

vigour to the distemper; for it usually killed those who were in the last stages of it, and confined those to their hammocks who were before capable of some kind of duty; so that it seemed as if alacrity preservatives from its fatal malignity.

But it is not easy to compleat the long roll of the various concomitants of this disease; for it often produced putrid fevers, pleurisies, the jaundice, and violent rheumatic pains, and sometimes it occasioned an obstinate costiveness, which was generally attended with a difficulty of breathing, and this was esteemed the most deadly of all the scorbutick symptoms; at other times the whole body, but more especially the legs, were subject to ulcers of the worst kind, attended with rotten bones, and such a luxuriancy of fungous flesh as yielded to no remedy. But a most extraordinary circumstance, and what would be scarcely credible upon any single evidence, is, that the scars of wounds which had been for many years healed were forced open again by this virulent distemper. Of this there was a remarkable instance in one of the invalids on board the Centurion, who had been wounded above fifty years before at the battle of the Boyne, for though he was cured soon after, and had continued well for a great number of years past, yet on his being attacked by the scurvy, his wounds, in the progress of his disease, broke out afresh, and appeared as if they had never been healed: nay, what is still more astonishing, the callus of a broken bone, which had been completely formed for a long time was found to be hereby dissolved, and the fracture seemed as if it had never been consolidated. Indeed, the effects of this disease were in almost every instance wonderful; for many of our people, though confined to their hammocks, appeared to have no inconsiderable share of health, for they ate and drank heartily, were cheerful, and talked with much seeming vigour, and with a loud, strong tone of voice; and yet, on their being the least moved, though it was from only one part of the ship to the other, and that too in their hammocks, they have immediately expired; and others, who have confided in their seeming strength, and have resolved to get out of their hammocks, have died before they could well reach the deck; nor was it an uncommon thing for those who were able to walk the deck, and to do some kind of duty, to drop down dead in an instant, on any endeavours to act with their utmost effort, many of our people having perished in this manner during the course of this voyage.

Lord Anson, "A Voyage Round the World"



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EDITORIAL

J. C. Hossack, M.D., C.M. (Man.), Editor

Meetings

In a few weeks from the time of writing the Convention will be in session with, we hope, a record number in attendance. Also, in a few days, the Winnipeg Medical Society will hold its first meeting of the year. Before long we shall be seeing the clinical programmes of the hospital luncheons, and, by the end of October, the work of the year will be on its way.

At all of these meetings there is the opportunity to learn. We are very fortunate in thus having so easily available a post-graduate course in almost every branch of medicine. Presentations of disorders that are seldom seen or are difficult to treat give each of us an opportunity to share and profit by the experiences of others. In both the old and the new there is much in which we need re-information and instruction, and at the various meetings our memories are refreshed and facts about new drugs and new methods of treatment are given to us by those who speak out of experience gained in the same environment in which we work.

Looked upon in this way, the winter can be as profitable at home as it would be abroad. The variety of topics discussed at the sum of these meetings is remarkably great; and, if we could manage it, all of this, in precis or in extenso would find its way into our pages. Much of it will, I hope, for from now on we mean to be very ruthless. We are going to demand, at sword's point if necessary, the papers of speakers at the Society meetings and at the hospital gatherings. What is deemed good enough and useful enough to present before a small audience should be sufficiently good and useful to lay before the larger audience of the Review. We are not greatly satisfied with the last year's results and are determined to make up for it during the coming year.

And you can help us by making it easy for us to get your papers, or, if you do not write, by our suggestions as to improvement.

Letters to the Editor

To the Editor.

Dear Sir:

I am resorting to your columns to express my views and grievances on a deplorable practice which has been flourishing in several hospitals of this City for sometime. This situation instead of improving is becoming worse. Two such institutions particularly have affected me personally over a period of years and although I have ignored

their discrimination in the past I feel that I can no longer allow the situation to remain unchallenged especially when I find that other practitioners, like myself, have undergone similar experiences. Because I am at a loss to know to whom I should make this appeal I am writing to you in the hope that this letter may arouse the interest of those who, like myself, have suffered similar unjust treatment and been discriminated against, and lead to some concerted effort to put an end to this objectionable practice. It is also hoped that this letter may bring to the attention of the hospitals, their directors and the members of their staffs, who are responsible for this situation, that such practices exist and should cease.

I refer, Sir, to the practice of lay members of the admitting and casualty room staffs purposely thrusting upon suffering patients brought in following accidents, the attention of doctors of their own choice or members of their own staffs, rather than simply calling the physician requested by the patient. Varied and at times subtle tactics are used by these people but so convincing and cunning are they that they usually manage to thrust upon the suffering patients a physician unknown to them and unwanted by them. With their resistance already lowered by suffering and anxiety the patient usually, after having repeatedly requested the attention of his own physician to no avail, gives up and accepts whoever these clerks have so graciously decided to favor him with. Later when their own physician hears of the incident and attempts to track down or trace the offending parties, the excuses given are legion, and no one knows who was present at the time or who was called or who was responsible for the switching of the patient.

I do not wish to imply, Sir, that the hospitals concerned or their directors are to blame because it is possible that they are not even aware of this deplorable practice and, if they are not then I hope that this letter may awaken them to investigate this matter and to see that it ceases immediately. Certainly if they do so this condition should cease and if they would openly invite criticism and reports on any further similar occurrences, the guilty parties could be reprehended and dealt with.

Bad enough as is the practice of these admitting and "casualty" staffs; I think even more deplorable is the fact that the physicians or surgeons who are called to attend these cases accept them without as much as the slightest curiosity as to why they were called and without even asking the patient who his family physician is, if he has

one, and why his own doctor was not called. Often these patients, after their injuries have been treated and after they have been discharged, return to their own physicians and request that they attend them. This naturally complicates matters and only causes trouble to both the physician concerned and the patient.

I hope, Sir, you will see fit to publish this letter in the Review and I hope that others who have had similar experiences come forward and express their views. The latest instance of such an action is a recent one and the one that prompted me to bring this matter to the attention of all concerned and I can support if necessary the claims herein made.

Respectfully yours,

Children's Hospital

Winnipeg, September 20, 1948.

Dear Dr. Hossack:

We have been trying, for some time, to obtain certain volumes of recent pediatric journals, which have strayed from our Library, so that the complete set for the year could be sent for permanent binding. Would it be possible to draw to the attention of the readers of the Manitoba Medical Review that the following journals are needed here in order to bring our library up to date?

Archives of Diseases in Childhood

1944—January, March and September
1945—January, March and December
1946—January
1947—January and June

American Journal of Diseases of Children

1945—August
1946—January, March, July and October
1947—January, February, April, May, June, September and December

Journal of Pediatrics

1945—June

Yours sincerely

Wallace Grant, M.D.,
Superintendent.

Missing

Polonius, advising his son Laertes, says in part, "Neither a borrower nor a lender be. For loan oft loses both itself and friend; and borrowing dulls the edge of husbandry." In libraries, however, the borrower-lender relationship is the normal one and sometimes it follows that the loan loses itself and that the "friend" remains unlost simply because he is unknown.

Miss Monk, the librarian of the Medical Library, is having trouble. She tells me that every year

there are some losses but this year these have reached an all-time high. Nine volumes, worth collectively nearly \$90.00 have disappeared. Notices posted around the College Buildings have had no results. It is impossible to say whether the "borrowers" were students or graduates. The solitary clue is the fact that nearly all the missing volumes concern woman, normal or abnormal. It follows that the party or parties concerned have a deep interest in the fair sex. Considering how long some of the books have been missing, however, it seems unlikely that the "borrower" or "borrowers" can extract more information from the volumes and they are therefore advised to return the books and to find some other way of satisfying their curiosity.

The library wants its books (our books) returned to it. Anyone who likes a book so much that he (she) keeps it for months should buy a copy for him (her) self.

So, if this strikes the eye of the "borrower" or "borrowers" concerned will he (she) please wrap up the book or books in question and mail them to the Library? Miss Monk will be so glad to see them again that she'll forget to ask questions.

Books Missing From Reading Room

From May 1st to September 15th, 1948

Bonnin: Fractures; 2d ed., 1946	\$ 7.00
Boyd: Textbook of Pathology; 5th ed., 1947	10.00
(Copy No. 1—Accession No. 4930)	
Deutsch: Psychology of Women; V. 2, 1944	5.50
Hawk & Oser: Practical Physiological Chemistry, 12th ed., 1947	7.97
Mengert: Postgraduate Obstetrics; 1947	5.65
Te Linde: Operative Gynecology; 1946	20.00
Berkeley: Textbook of Gynaecological Surgery; 4th ed., 1942	14.00

Books Missing From Stacks

Association of American Physicians, Transactions; v. 50, 1935 and v. 51, 1936	5.00
(Missing since September 10, 1948)	
Ploss & Bartels: Woman, V. 1. (A 3-volume set. Purchased in 1936—cost \$22.50)	7.50
(Missing since October, 1946)	

Total\$87.62

The above books were all recent purchases (i.e. 1947 and 1948) except the stack room ones and Berkeley was purchased in 1945.

The following list gives the losses by funds:

Presented by Mr. Rait	\$30.50
Presented by C. P. & S. Grant	28.50
Presented by W. M. S. Grant	5.65
Presented by Assoc. American Physicians	5.00
Purchased by University	17.97

Total\$87.62

SOCIAL NEWS

Reported by K. Borthwick-Leslie, M.D.

So the "Gossip" is missed, when I get myself so thoroughly in the doghouse with Gordon and Ye Editor by going on holidays. Perhaps if those who call and complain about my omissions, would call and give me the news, I might have more time to spare.

◆
Congratulations to Dr. and Mrs. W. J. Gunne, Kenora, Ont., on their Diamond Wedding Anniversary; also the anniversary of Dr. Gunne's registration in Manitoba, August 30, 1886, having graduated from Trinity in 1885.

◆
The many friends of Dr. Carl Henneberg will join with me in congratulations on his being admitted to the Royal College of Obstetricians and Gynaecologists. So far as I know, Carl and K. are still in London, Eng.

◆
Congratulations to Dr. and Mrs. R. O. Flett on the birth of Lawrence Henry, August 11th.

◆
Dr. and Mrs. W. R. Livingston, Deep River, Ont., on the arrival of John Hamilton.

◆
The Vann's card speaks for itself!

Dr. and Mrs. D. S. McEwen, announcing the birth of Robert, Sept. 24th.

◆
Dr. P. E. La Fleche also has been honored by appointment to one of the highest offices of the Knights of Columbus, i.e. Master of the Fourth Degree.

◆
Speaking of "Grandpa," that is a mighty cute lad, John Hopkins, Toronto, who with his mother has been cultivating his grandparents, Dr. and Mrs. E. J. Washington.

◆
Dr. K. J. Backman is now in full charge of the Venereal Disease Control in Manitoba. He succeeds Dr. E. M. Gee, who resigned from the position to enter private practice.

◆
To Dr. J. P. Gemmell, congratulations on the award of National Research Fellowship. Dr. Gemmell will do research at the U. of M. for 1948-49.

◆
Dr. and Mrs. Wm. Locke left Winnipeg a short time ago for Boston, Mass., where Dr. Locks has accepted an appointment at Harvard Medical School, working in the General Hospital.

MAGGIE, EARL & MURRAY VANN		Weight 6 Pounds	
PRESENT A SOUVENIR OF		And 3 Ounces	
"A \$100 Deduction"		Plumbing Outside	
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MARK EARL VANN		at 200 Linwood Street, St. James, Man. (Detach and use this stub)	
1 Boy	COMMAND PERFORMANCE SEPTEMBER 12, 1948 12 p.m.		
	DR. A. M. GOODWIN, Director Costumes by CURITY		
	Dr. J. E. Graf and Staff St. Boniface Hospital reserve right to cancel Personal Appearances when STAR is sleeping		

◆
Dr. and Mrs. E. J. Rigby on the birth of their daughter, August 13th.

◆
Dr. and Mrs. Archie Gray, August 29th, in Edinburgh, Scotland, the birth of Judith Alison.

Dr. and Mrs. George Morrow, Hamilton, Ont., were visitors in Winnipeg attending the wedding of their son, Dr. Charles Morrow and Miss Shirley Pinfold.

(Over)

* Reg'd Trade Mark

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Birthday congratulations to Dr. H. D. Benwell, Grand Forks, N.D., born in Buffalo, N.Y., August, 1895. How time flies!

I haven't seen Pat McNulty since his daughter, Betty, was crowned "Miss Lake Louise," but I bet his chest measurement has expanded.

Dr. and Mrs. R. G. Winram, both photogenic, obviously enjoyed their holiday, motoring to Victoria via the U.S.A. Also I have had a glowing account of the motor trip of Dr. and Mrs. Scribner, Gimli, Man., who with Rev. and Mrs. Sigurgeirson travelled through sixteen states as far as the Mexican border. A most enjoyable winter at Gimli will be spent reminiscing over the colored movie films of Yellowstone Park, Grand Canyon, Salt Lake City, Saturday night in Reno, etc.

How our Anna gets around! One month we report her in the Algonquins with boils, the next in Geneva, with the "broils," now home again as full of pep and enthusiasm as ever. We will be hearing more from her.

Dr. Harry Colman, well known Varsity track man of the 1932 era, has been awarded a fellowship at the Royal College of Surgeons, Edinburgh.

Surprise! The Clinic's now advertising with the Taxi Stands! Duffy's really should be reprimanded, however, on passing up important factors like the Mall Clinic and that Kathleen Virginia Borthwick-Leslie one! How could they!

The wedding of Bernice Barbara Warne and Dr. George Sisler took place Sept. 18th in the King Memorial Church. Dr. Baird Jones was the groom's attendant and Drs. E. Brownell and O. Eggertson, ushers. Dr. and Mrs. Sisler will reside at 127 Chestnut St.

Sincere sympathy to the friends and relatives of Dr. C. E. Fortin, son of the late Archdeacon Fortin, who died recently in Santa Monica, Cal.

Also Dr. J. W. Cartmell, Glenboro, Man., physician of the district for 57 years.

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cially selected cow's milk of a Tuberculosis Accredited Free Area. It's homogenized, irradiated and sterilized. When diluted with an equal amount of water, it results in a half skimmed (2% fat) milk—which is easier for infants to digest. And it has a Vitamin D potency of 400 International Units per reconverted quart (half Farmer's Wife—half water).

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Many arthritic patients are of necessity confined indoors. For therapeutic reasons their diet may be restricted or their appetites diminished due to physical inactivity. Ostoforte Compound capsules supply massive doses of Vitamin D, and in addition, adequate amounts of other essential vitamins.

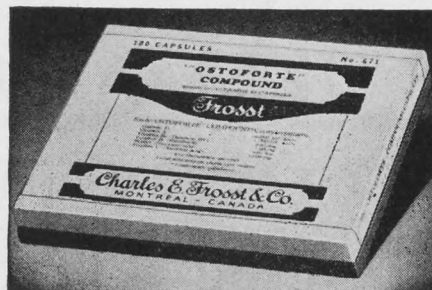
FORMULA

	Per Capsule
Vitamin D	50,000 Int. Units
Vitamin A	1,666 Int. Units
Thiamine HCl (Vitamin B ₁)	0.67 mg.
Riboflavin (Vitamin B ₂)	1.00 mg.
Niacinamide	6.67 mg.
Ascorbic Acid (Vitamin C)	15.00 mg.

TREATMENT

One Ostoforte Compound capsule per day, gradually increasing to the effective dose which may be 4 to 6 capsules daily, depending on the patient's response and toleration. Of course, response will vary with the individual, but treatment should

be continued for at least 3 months in order to establish its usefulness. After that, a single dose may be estimated, which will hold the patient in remission and maintain progress. Adjunctive treatment such as rest, splints, massage, diathermy, correction of bowel habits and elimination of foci of infection should be employed where indicated.



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Boxes of 50 and 100 capsules

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Some Social and Economic Aspects of Drug Addiction

K. C. Hossick

Mr. President and Gentlemen:

Since I took over the position of Chief of the Division of Narcotic Control of the Department of National Health and Welfare, some two and one-half years ago, we have not found it necessary to bring court action against a single practising retail druggist in this country.

This extremely satisfactory state of affairs we appreciate is due in no small measure to the splendid co-operation which we are receiving not only from the trade in general, but from the executive officers and registrars of the various Provincial Pharmaceutical Associations.

No one knows better than the druggist the latent powers of narcotics for both good and evil. From his own experience, he understands the important contribution to the relief of pain and suffering. If he has no personal acquaintanceship with the more sinister side of the problem, he has certainly read about and seen motion pictures dealing with the instrumentality of drugs as destroyers of souls and torturers of human minds and bodies. Narcotic drugs have the sort of Jekyll and Hyde personality which civilization is beginning to ascribe to atomic energy—less dramatic per se, but possessed of equal power for benevolence or malefaction, depending on the methods and purposes of their employment. In the hands of the criminal, narcotic drugs can create a lawless traffic which unquestionably infects and disrupts every field of international enterprise and pollutes every stream of human life with which it comes in contact.

So, as with all such agents with latent potentialities for good or ill, rigorous restraint of narcotics is vital to our survival. Such control too, must be on an international level, as is being found imperative with other instruments and substances whose unrestrained and anti-social use could threaten our very existence.

Canada has always been alive to the need for keeping close check on narcotics, and we contribute to the fullest extent to the international machinery for ensuring that such dangerous drugs become available only to those who would use them for human betterment.

From the social angle, it is necessary to consider that action is appropriate with respect to addicted individuals. Police officials in general are particularly concerned about this aspect of the problem since they feel discouraged at the apparent futility of repeated arrest and imprisonment of addicts, with no improvement in their hopeless

enslavement to narcotics.

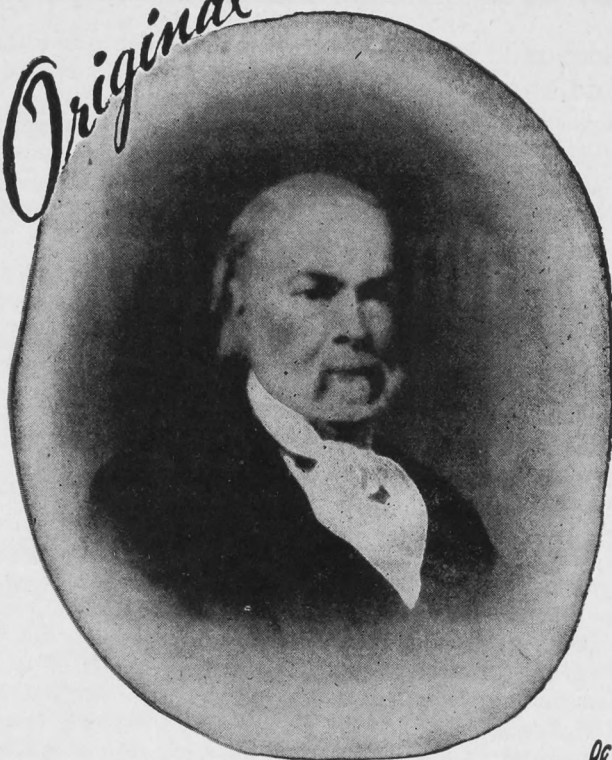
There are many police officials, and other authorities, who claim that there is **no** cure for addiction, and certainly no one would deny that cure is extremely difficult and relapses are frequent. Some of those who stress this point of view have proposed that the problem be met by means of clinics or some system whereby an addict may receive a minimum sustaining dose. I am aware that this proposal has recently been given renewed consideration by many persons who are seriously interested in the drug addiction problem. However, those who advocate such a program generally overlook one very important fact, which I will later refer to, and which is fundamental to the phenomena of narcotic drug addiction. In my opinion, the establishment of medical clinics for the purpose of administering drugs would definitely be a backward step. This view is based on our study of experience elsewhere with these clinics, and I might mention, too, that the clinic system has been condemned by a well-known authority, Dr. P. O. Wolff, in a recent bulletin of the Health Organizations of the United Nations.

The possibility of an addict receiving a sustaining dose would entirely minimize the probability of any successful remedial and rehabilitative treatment. Since the desire for the drugs is the predominant factor, the knowledge that drugs would become available through failure of treatment would obviously make treatment more difficult, if not impossible. The administration of a minimum amount of drugs is practically an impossibility, since increasing amounts of the drugs are necessary to provide the same effects after tolerance has been developed. It is generally agreed that most addicts are of "unstable" personality, and it is these irresponsible individuals who are least able to maintain any minimum sustaining dosage. Consequently the clinic system would be useless for them.

Advocates of the narcotic clinic idea have also suggested that such a system would reduce the illicit traffic, since the availability of the drug legitimately would reduce the illicit market, and of course the price, and the illicit trade would then cease. However, because of this tolerance effect that I have referred to addicts would be prone to take what they could get, wherever available. They would be inclined to get their minimum dosage at the clinics and then go to their usual illicit sources for the additional drugs that they would crave. In short, gentlemen, I cannot look with any favour on the idea of clinics for the administration of minimum or sustaining doses of narcotic drugs to addicts.

My department, nevertheless, has had under constant study the possibility of effective treatment of drug addiction, since an individual cure

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would have not only its intrinsic value, but would be an important factor in reducing the spread of addiction through association. Needless to say, there are many complexities in connection with the treatment of addiction due to the psychological nature of the habit itself, and because of other social and economic factors.

In order to give the fullest possible consideration to this matter, there was established by Order-in-Council last year, a Technical Advisory Committee on Narcotic Drug Addiction to assist and advise the Minister of National Health and Welfare, on matters relating to the anti-social use of narcotic drugs in Canada, addiction thereto, and treatment thereof. The membership of the Committee includes physicians, psychiatrists, lawyers, police officials and others who can contribute to the study of the problem. This Committee has made an extensive inquiry into various aspects of the problem with particular reference to the treatment of drug addiction.

In the first place, there are in Canada, no public institutions concerned with either the study of drug addiction nor specializing in its treatment. The Committee, therefore, sought information from the two institutions in the United States which have been established for these purposes, one at Lexington, Kentucky, and the other at Fort Worth, Texas. These two institutions are concerned with the treatment of drug addiction only, and provide, so far as North America is concerned, substantially the only resources for scientific treatment of addicts and research into the problem of addiction. The information given by the Lexington authorities, and which is based upon the thorough follow-up of paroled patients, shows that 55.7 were found to be abstinent when contacted over periods ranging from six months to six years after discharge. Based, therefore, on our knowledge of the subject, as well as a study of the benefits obtained by the American authorities, I am of the opinion that proper institutional treatment **can** result in an appreciable proportion of cures.

The method of treatment in the United States has three main phases. Firstly the withdrawal and detoxication; secondly, psychiatric and physical treatment, and thirdly, rehabilitation through occupational therapy and vocational guidance.

Experience has also shown that favourable results can be expected only where and when these aspects of treatment are carried out in a non-punitive atmosphere.

While the Committee studying this problem recognizes that adequate treatment facilities should be made available to all narcotic drug addicts in Canada, it also recognizes many practical difficulties in instituting a program for such purposes, and, at the present time, we are endeavouring to

obtain factual information in relation to the whole problem.

Any benefits growing out of successes in this field of treatment will undoubtedly include a decrease in crime, a substantial reduction in money loss to business, and a saving to the authorities in enforcement. Furthermore, the successful treatment of addiction, in addition to what I have just said, would itself tend to eliminate, in Canada, the social problem involved, a curse which is regarded as one of the major human ills in the world today. Enforcement of Canada's responsibilities in this field, both through the Division of Narcotic Control and by the Police authorities in general, would be materially assisted and I feel sure would have the active support of all retail druggists throughout the Country.

Turning now, to the economic side of the matter, I would point out that the economic loss involved through the criminal activities of drug addicts foraging for funds to support their addiction is extremely high. Due to close control and supervision of the supply and distribution of narcotic drugs, addicts almost invariably are forced to obtain their supplies through illicit channels. Because of the very high cost of drugs in illicit channels most of these miserable people are obliged to turn to criminal activities to secure the funds necessary to purchase their drugs of addiction.

The direct loss so involved is impossible to calculate with precision. From the examination which has so far been possible on the basis of existing figures, it would be safe to say that in Canada alone, such loss runs into many millions of dollars yearly. This loss is borne, in large part, by business generally through robbery, shoplifting, as well as other forms of fraudulent activity. That the indirect loss must be terrific can perhaps be illustrated by the following example of the direct cost of the anti-social use of narcotic drugs purchased through illicit channels:

An ounce of morphine or heroin, which contains some 437½ grains, sells in legal channels for approximately \$11.00. In illicit channels, this has a value of some \$20.00 per grain, or approximately \$8,750.00 an ounce. Inasmuch as the drug is normally adulterated by the traffickers, the cost to the ultimate user would be considerably higher than that figure. Experience has shown that one grain per day to an addict would be regarded as a very low stabilizing dosage.

Examining this illustration against the known number of criminal addicts in Canada some idea can be obtained of the fearful fund we forfeit to the anti-social use of narcotic drugs.

To the indirect loss, as well as the figures given to illustrate the drug cost, must be added the cost

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*Bull: Johns Hopkins Hosp. 73:379

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of enforcement, including apprehension, conviction and imprisonment of narcotic offenders.

Responsible Police officials have said that it may cost an addict from \$20.00 to \$30.00 a day for his drugs, and that, to obtain this money, he would have to steal goods to about three times this value. In some cases, thefts might amount to \$100.00 a day. An attempt was made to get some direct information on the economic loss attributable to thefts by addicts.

With the help of the R.C.M. Police and certain municipal police forces, as also certain departmental store officials, it was established that addicts are responsible for a considerable proportion of thefts and the indications were that they were most selective and tended to steal more costly articles.

As efforts to obtain direct information on the subject of actual loss were only partly successful, attention was again directed to what has been called an indirect method of computing the toll. On the basis of such facts as the illicit price of the drugs, the daily dose of an addict and the amount an addict obtains for goods stolen when they are disposed of to a fence, as has already been stated, the amounts involved reach very high figures. In fact, two thousand addicts, using a grain a day, which is considered a small dose would be responsible for an economic loss of about forty-two million dollars in a year, if they received only a quarter of the value of merchandise stolen, and bought drugs at an average street price of \$15.00 a grain.

There are, however, many factors involved in this aspect of the drug addiction problem, and most of these are of unknown magnitude or may be only very inaccurately estimated. In view, therefore, of these circumstances, many figures of economic loss computed by the method I mentioned, must be accepted with some reserve, but even if they were drastically reduced, they still add up to very considerable figures, particularly when considered in relation to costs of any proposed treatment facilities.

All retail druggists, will, I am sure, appreciate that any possible increase in the anti-social use of narcotic drugs must be regarded as a serious problem to the authorities concerned with enforcement of narcotic legislation. In order, therefore, that such enforcement officers and others concerned with the suppression of the narcotic traffic, receive the utmost assistance, it has been considered by my department, in the public interest, that motion picture material should be prepared to illustrate approved detection and enforcement procedures, based on the experience of the authorities in Canada and other countries.

Steps have, accordingly, been taken for the production of a film strip in color, a still photo-

story and a two-reel film in black and white. Among those to whom this material is to be shown, will be Federal, Provincial and Municipal enforcement authorities, Customs inspectors, and, in fact, all officials concerned in narcotic detection and suppression work, in fact it is my hope that the motion picture material will be available for showing to many educational groups.

I will not take up your time with any description of the film strip or photo-story, but with regard to the black and white two-reel film entitled "Drug Addict," this film concentrates primarily on that group with which enforcement officers have their principal contact, the so-called criminal addict, that is, the addict who obtains his drugs mainly from illegal sources with funds usually obtained by contravention of the law and at the expense of society.

The film shows something of the addict's way of life, and his pursuits, and it does this with realism, for the people who appear as addicts, are addicts, and they themselves provided much of the guidance, together with the police, from which the National Film Board officials chose the situations and developed them into the sequences which make up the principal part of the film. The settings are also real and representative. They were "shot" mostly in Montreal but could just as well have been filmed in any of our principal cities. The film should give law enforcement officers, particularly those who are not informed about the drug traffic and who are not familiar with addicts and the demands of their compelling habit, an insight into this element of our criminal population. It is a documentary film about real people leading their real lives.

The film does not stop with the criminal addict. It touches on the sources of the principal drugs, the opium poppy, and the international control of its growth and distribution, (for of course, opiates are needed in medical practice); on the illicit traffic, tracing it down from the large scale dealings by the "master minds" of the underworld, through the various stages to its final market, the addict. It must, of course, always be borne in mind that narcotic drugs are among the most lucrative commodities in crime.

The film also deals with the use of drugs by the medical profession and with the increased care the physician must take if he is to avoid unwittingly creating addicts in the course of treating those suffering from genuine ailments.

The picture touches on the new synthetic drugs and on the research for analgesic compounds without addiction properties. It deals with the appalling problem of these new synthetics which can be prepared with such ease that the whole attitude towards international control, which had been based mainly on the opium problem, may well



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I-SO-GEL contains no purgatives and is a purely natural laxative with a smooth, mechanical action, especially suitable for the constipation of diabetes.

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ve to be revised.

The film poses a few very real questions which thinking people with some knowledge of the baffling problem of why men turn to drugs, and why they place such a terrible reliance on it, with the consequent threat to society, have asked themselves before. There are also many other problems which we hope to find solutions as a result of the deliberations of the Technical Advisory Committee on Narcotic Addiction.

Although the film deals mainly with the criminal addict, it advances the scientific knowledge that addiction has deeper roots, and involves some malformation of the personality of the individual. Addiction and crime, though they often go hand in hand, are separate problems and in an effort to cure addiction we cannot find our final answer in jails alone, but by curing the basic cause and in helping the addict to learn how to become a productive member of society, free from the enslaving hold of the drug which has dictated his way of living. This is the prime objective of my department at the present time.

Finally, it is my opinion that while this film will be of great assistance to enforcement officers in general, same should help to inform all other interested agencies about this very real social problem.

May I also at this time, Mr. Chairman, take the opportunity of expressing my appreciation of the privilege offered to me, as Chief of the Canadian Division of Narcotic Control, of addressing the members of this association and at the same time, tendering my personal thanks to all members present, for the co-operation given to my division in narcotic enforcement.

I trust, gentlemen, that this discussion of some of the social and economic aspects of the problem of the drug addict has been of interest and that I have been able to emphasize the complexity of the subject, and to point to the possibility of further effective action through adequate treatment. Such action will, I believe, be definitely worthwhile in view of the social loss on the one hand and the financial loss on the other. My department, which is charged with the administration of a most important piece of national legislation designed for the security and welfare of the people of Canada, is fully conscious of the job which must be done. With your help, we will tackle it, and succeed.



Medical History Section

A number of doctors have expressed their desire to take part in the meetings of this section. If everyone who is interested please let me know either by telephone (98 936) or by writing.

J. C. Hossack.

OBITUARIES

Reported by Ross Mitchell, M.D.

Dr. Alfred Brodie Stewart

Dr. Alfred Brodie Stewart, who after fifty years of practice at Plumas, retired only last November, died on August 5 at Binscarth in the home of one of his three daughters. He graduated in medicine from Manitoba Medical College in 1895 and in 1933 was made a Life Member of the College of Physicians and Surgeons of Manitoba.

Dr. James Winter Cartmell

Dr. James Winter Cartmell died at his home in Glenboro, Manitoba, in his 82nd year. Born at Listowel, Ont., he came to Birtle with his parents in 1880. He attended Manitoba University and graduated in 1891. He carried on his practice at Glenboro for 57 years. For 41 years he was medical health officer of the municipality of South Cypress and reeve for ten years. He took a keen interest in all public affairs and was an enthusiastic curler.

He is survived by his widow, one daughter, one son and one granddaughter.

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Urology Award

The American Urological Association offers an annual award of \$1,000.00 (first prize of \$500.00, second prize \$300.00 and third prize \$200.00) for essays on the result of some clinical or laboratory research in Urology. Competition shall be limited to urologists who have been in such specific practice for not more than five years and to residents in urology in recognized hospitals.

The first prize essay will appear on the programme of the forthcoming meeting of the American Urological Association, to be held at the Biltmore Hotel in Los Angeles, May 16 to 19, 1949.

For full particulars write the Secretary, Dr. Thomas D. Moore, 899 Madison Avenue, Memphis 3, Tennessee. Essays must be in his hands before February 15, 1949.

Van Meter Prize Award
By American Goiter Association

The American Goiter Association again offers the Van Meter Prize Award of Three Hundred Dollars and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The award will be made at the annual meeting of the Association which will be held in Madison, Wisconsin,

May 26th, 27th and 28th, 1949, providing essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or research investigations; should not exceed three thousand words in length; must be presented in English; and a typewritten double spaced copy sent to the Corresponding Secretary, Dr. T. C. Davison, 207 Doctors Building, Atlanta 3, Georgia, not later than March 15th, 1949. The committee, who will review the manuscripts, is composed of men well qualified to judge the merits of the competing essays.

A place will be reserved on the program of the annual meeting for presentation of the Prize Award Essay by the author if it is possible for him to attend. The essay will be published in the annual Proceedings of the Association. This will not prevent its further publication, however, in any Journal selected by the author.

Sincerely,
T. C. Davison, M.D.,
Corresponding Secretary.

Medical Health Officers' Association
October 18th, 1948

Marlborough Hotel, Winnipeg

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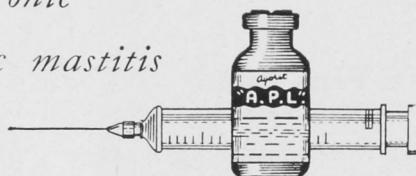
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* Morton, Joseph H: Endocrine Features and Treatment of Chronic Cystic Mastitis and their Relation to Infertility, New York State J. Med.: 46:1815 (Aug. 15) 1946.
Morton, Joseph H.: Chronic Cystic Mastitis and Sterility, J. Clin. Endocrinol: 6:802 (Dec.) 1946.

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Department of Health and Public Welfare
Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1948		1947		TOTALS	
	Aug. 7,'48 July 11 to	June 13 to July 10,'48	July 13 to Aug. 9,'47	June 15 to July 12,'47	Dec. 28,'47 to Aug. 7,'48	Dec. 29,'46 to Aug. 9,'47
Anterior Poliomyelitis	7	2	169	10	12	179
Chickenpox	163	307	67	133	1957	840
Diphtheria	1	4	4	3	13	63
Diphtheria Carriers	2	1	0	1	4	16
Dysentery—Amoebic	0	0	0	0	0	0
Dysentery—Bacillary	1	3	4	0	4	7
Erysipelas	3	1	3	2	21	30
Encephalitis	0	1	13	0	1	14
Influenza	8	3	9	4	116	132
Measles	62	138	115	344	741	6469
Measles—German	2	0	0	0	33	32
Meningococcal Meningitis	2	2	0	0	11	9
Mumps	67	119	45	31	1331	1175
Ophthalmia Neonatorum	0	0	1	0	0	1
Pneumonia—Lobar	7	12	11	9	108	151
Puerperal Fever	0	0	0	0	1	3
Scarlet Fever	17	15	2	11	149	137
Septic Sore Throat	1	1	0	0	15	14
Smallpox	0	0	0	0	0	0
Tetanus	2	1	1	1	3	3
Trachoma	1	0	0	0	1	2
Tuberculosis	153	113	125	218	807	1079
Typhoid Fever	1	0	1	3	5	5
Typhoid Paratyphoid	0	0	0	0	0	0
Typhoid Carriers	0	0	0	0	0	1
Undulant Fever	1	3	0	1	10	6
Whooping Cough	5	9	99	79	210	803
Gonorrhoea	118	127	147	151	942	1226
Syphilis	38	33	49	55	317	379
Diarrhoea and Enteritis, under 1 yr.	7	17	19	19	113	126

Four-Week Period July 11 to August 7, 1948

DISEASES (White Cases Only)	*743,000 Manitoba	*906,000 Saskatchewan	*3,825,000 Ontario	*2,962,000 Minnesota
*Approximate population.				
Anterior Poliomyelitis	7	6	59	132
Chickenpox	163	69	559	---
Diarrhoea and Enteritis	7	---	---	---
Diphtheria	1	---	---	7
Diphtheria Carriers	2	---	---	---
Dysentery—Amoebic	---	---	---	5
Dysentery—Bacillary	1	---	---	2
Erysipelas	3	1	---	---
Influenza	8	---	18	1
Malaria	---	---	---	6
Measles	62	15	937	70
Measles, German	2	1	14	---
Meningococcal Meningitis	2	---	3	5
Mumps	67	36	347	---
Pneumonia Lobar	7	---	---	---
Scarlet Fever	17	6	64	30
Septic Sore Throat	1	1	6	---
Tetanus	2	---	---	---
Trachoma	1	---	---	---
Typhoid Fever	1	---	2	---
Typh. Para-Typhoid	---	3	1	1
Undulant Fever	1	---	12	17
Tuberculosis	153	50	116	333
Whooping Cough	5	9	35	31
Gonorrhoea	118	---	207	---
Syphilis	38	---	130	---

DEATHS FROM REPORTABLE DISEASES

For Four-Week Period July 14 to August 10, 1948

Urban—Cancer, 45; Lethargic Encephalitis, 1; Pneumonia, Lobar (108, 107, 109), 2; Pneumonia (other forms), 6; Tuberculosis, 14; Diarrhoea and Enteritis (under 2 years), 2; Paratyphoid Fever, 1; Tetanus, 1; Septicaemia, 1. Other deaths under 1 year, 17. Other deaths over 1 year, 181. Stillbirths, 13. Total, 211.

Rural—Cancer, 28; Pneumonia (other forms), 5; Tuberculosis, 9; Diarrhoea and Enteritis (under 2 years), 4; Tetanus, 1; Hodgkin's Disease, 1. Other deaths under 1 year, 12. Other deaths over 1 year, 120. Stillbirths, 5. Total, 137.

Indians—Influenza, 1; Measles, 1; Tuberculosis, 6. Other deaths under 1 year, 0. Other deaths over 1 year, 6. Stillbirths, 0. Total, 6.



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Department of Health and Public Welfare
Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1948		1947		TOTALS	
	Aug. 8 to Sept. 4, '48	July 11 to Aug. 7, '48	Aug. 10 to Sept. 6, '47	July 13 to Aug. 9, '47	Dec. 28, '47 to Sept. 4, '48	Dec. 29, '46 to Sept. 6, '47
Anterior Poliomyelitis	44	7	327	169	56	506
Chickenpox	60	163	28	67	2017	868
Diphtheria	3	1	4	4	18	67
Diphtheria Carriers	0	2	0	0	4	16
Dysentery—Amoebic	0	0	1	0	0	1
Dysentery—Bacillary	6	1	0	4	10	7
Erysipelas	2	3	3	3	23	33
Encephalitis	1	0	53	13	2	67
Influenza	5	8	14	9	121	146
Measles	66	62	86	115	807	6555
Measles—German	1	2	0	0	34	32
Meningococcal Meningitis	0	2	2	0	11	11
Mumps	69	67	21	45	1400	1196
Ophthalmia Neonatorum	0	0	0	1	0	1
Pneumonia—Lobar	17	7	11	11	125	162
Puerperal Fever	0	0	0	0	1	3
Scarlet Fever	13	17	5	2	162	142
Septic Sore Throat	5	1	0	0	20	14
Smallpox	0	0	0	0	0	0
Tetanus	1	2	1	1	4	4
Trachoma	0	1	0	0	1	2
Tuberculosis	190	153	216	125	997	1295
Typhoid Fever	1	1	0	1	6	5
Typhoid Paratyphoid	2	0	0	0	2	0
Typhoid Carriers	0	0	0	0	0	1
Undulant Fever	1	1	1	0	11	7
Whooping Cough	32	5	98	99	242	901
Gonorrhoea	123	118	198	147	1065	1424
Syphilis	31	38	36	49	348	415
Diarrhoea and Enteritis, under 1 yr.	15	7	9	19	128	135

Four-Week Period August 8 to September 4, 1948

DISEASES	*743,000 Manitoba	*906,000 Saskatchewan	*3,825,000 Ontario	*2,962,000 Minnesota
(White Cases Only)				
*Approximate population.				
Anterior Poliomyelitis	44	20	82	303
Chickenpox	60	68	213	---
Diarrhoea and Enteritis	15	---	---	---
Diphtheria	5	2	9	10
Dysentery—Amoebic	---	---	---	5
Dysentery—Bacillary	6	---	---	71
Erysipelas	2	1	3	---
Influenza	5	---	39	3
Malaria	---	---	---	2
Measles	66	45	230	35
Measles, German	1	3	25	---
Meningococcal Meningitis	---	1	---	---
Mumps	69	41	119	---
Pneumonia Lobar	17	---	---	---
Scarlet Fever	13	4	56	36
Septic Sore Throat	5	---	1	---
Tetanus	1	1	---	---
Trachoma	---	5	---	---
Tuberculosis	190	37	88	249
Typhoid Fever	1	---	4	---
Typhoid Carrier	---	8	---	---
Typh. Para-Typhoid	2	---	1	5
Undulant Fever	1	1	6	10
Whooping Cough	32	15	45	42
Gonorrhoea	123	---	335	---
Syphilis	31	---	155	---

DEATHS FROM REPORTABLE DISEASES

For Four-Week Period August 11 to September 7, 1948

Urban—Cancer, 38; Influenza, 2; Pneumonia Lobar (108, 107, 109), 1; Pneumonia (other forms), 4; Poliomyelitis, 1; Syphilis, 2; Tuberculosis, 10; Typhoid Fever, 1; Diarrhoea and Enteritis (under 2 years), 2. Other deaths under 1 year, 21. Other deaths over 1 year, 148. Stillbirths, 13. Total, 182.

Rural—Cancer, 21; Erysipelas, 1; Influenza, 1; Measles, 1; Pneumonia Lobar (108, 107, 109), 2; Pneumonia (other forms), 9; Syphilis, 1; Tuberculosis, 13; Diarrhoea and Enteritis (under 2 years), 5. Other deaths under 1 year, 10. Other deaths over 1 year, 139. Stillbirths, 9. Total, 158.

Indians—Cancer, 2; Influenza, 1; Pneumonia (other forms), 5; Tuberculosis, 5. Other deaths under 1 year, 0. Other deaths over 1 year, 6. Stillbirths, 0. Total, 6.

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